

FINDING OF NO SIGNIFICANT IMPACT

ENVIRONMENTAL ASSESSMENT FOR MULTIPLE PROJECTS AT LAUGHLIN AIR FORCE BASE, TX

Pursuant to the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA) of 1969, as amended, 40 Code of Federal Regulations (CFR) Parts 1500-1508, and 32 CFR 989, the United States Air Force has prepared an Environmental Assessment (EA) to analyze the impacts from the implementation of the Proposed Action for multiple projects at Laughlin Air Force Base (AFB), TX.

Proposed Action

The Proposed Action is for Laughlin AFB to implement several projects in order to improve its operational efficiency and to address ground and flight safety deficiencies at the airfield. Collectively, the projects would involve demolishing 23 facilities; replacing them with facilities that meet Air Force facility requirements, more energy efficient, have a lower operating cost, enhance mission accomplishment and improve the storm water drainage system and slopes at the Laughlin's airfield. The Proposed Action would consist of the following separate projects:

- Demolish the Aerospace Physiology Facility (Building 380) and construct a new building directly southwest of the Flight Simulator Facility (Building 328);
- Demolish 21 existing housing units (Buildings 9200-9220) and construct a new 37,391 square foot (SF) Student Officer Quarters at a site approximately 500 feet southwest of Building 446;
- Demolish the existing outdoor small arms range (Building 1100), and construct a new 36,560 SF fully-contained indoor range approximately 600 feet to the north; and,
- Repair and improve stormwater drainage and steep slopes at the Laughlin AFB airfield.

Construction would include site clearance, excavation, foundation, utility and infrastructure systems, fire detection and protection systems, exteriors, roofs, landscaping and communications wiring and equipment. New buildings would be constructed to meet LEED Silver requirements.

To minimize the potential of excessive erosion of exposed soils from stormwater runoff, best management practices (BMPs) would be implemented during construction and demolition (C&D). These could include such measures as silt fences, covering exposed dirt piles and temporary berms. Upon project completion, disturbed areas would be graded, revegetated and stabilized. This will prevent excessive erosion, reduce runoff velocity and control the proliferation of noxious weeds.

Demolition of the existing facility would consist of completely tearing down and removing building structures, equipment and related impervious surfaces such as parking lots in the building demolition project area. Areas undergoing demolition or construction would be fenced off and *no trespassing* signs would be posted. Construction equipment would be secured when not in use. Utility connections at the project site would be demolished up to and capped at the secondary feed where feasible. Solid and hazardous waste (including asbestos-containing materials [ACM] and lead-based paint [LBP]) would be disposed of consistent with federal, state and installation requirements for handling and disposal. A waste disposition report detailing the disposal location would be provided. Potential recycling opportunities, such as from copper piping, aluminum and steel, would be identified by the installation and coordinated

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14. ABSTRACT Laughlin AFB proposes to implement several projects in order to improve its operational efficiency and to address ground and flight safety deficiencies at the airfield. Collectively, the projects would involve demolishing 23 facilities; replacing them with facilities that meet Air Force facility requirements, are energy efficient, have a lower operating cost than current facilities, enhance mission accomplishment, and improve the stormwater drainage system and slopes at the Laughlin AFB airfield. The Proposed Action would consist of the following separate projects &#61623; Demolish the Aerospace Physiology Facility (Building 380) and construct a new building directly southwest of the Flight Simulator Facility (Building 238) &#61623; Demolish 21 existing housing units (Buildings 9200-9220) and construct a new 37,391 square foot (SF) Student Officer Quarters at a site approximately 500 feet southwest of Building 446 &#61623; Demolish the existing outdoor small arms range (Building 1100), and construct a new 36,560 SF fully-contained indoor range approximately 600 feet to the north; and &#61623; Repair and improve stormwater drainage and steep slopes at the Laughlin AFB airfield. Alternatives for the proposed projects were evaluated as part of this EA including the No Action Alternative. Additionally, several alternatives were eliminated from further consideration during the scoping process.					
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with the demolition contractor. This would ensure that materials generated during demolition are recycled to the greatest extent possible.

Airfield improvement projects would consist of the excavation and backfill of soils. Reinforced concrete pipe and box culverts would also be installed. Areas near the southern end of the center runway would be filled and graded to achieve a more desirable slope.

Alternatives for the proposed projects were evaluated as part of this EA. Additionally, several alternatives were eliminated from further consideration during the scoping process.

No Action Alternative

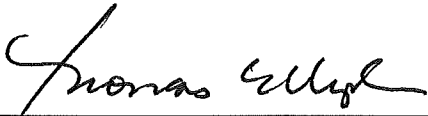
Under the No Action Alternative, existing conditions would remain the same. The existing substandard facilities would not be demolished and stormwater drainage conditions at the flight line would not be corrected. Maintenance costs would continue to increase, diverting resources away from other facilities. Safety hazards at the airfield would not be corrected, leading to increased risk to pilots and lost flight hours. Airfield waivers for non-compliant slopes would continue to be required.

PUBLIC REVIEW AND COMMENT

The Draft EA and Draft Finding of No Significant Impact (FONSI) were made available for a 30-day public review and comment from 26 October 2012 through 26 November, 2012 at the Val Verde County Public Library and Laughlin Air Force Base Library. The availability of the document was advertised for review and comment in the Del Rio News-Herald and in the Laughlin Herald on 26 October 2012.

CONCLUSION

Based on the EA conducted in accordance with the National Environmental Policy Act, the Council on Environmental Quality regulations and implementing regulations set forth in 32 CFR 989 (Environmental Impact Analysis Process), it is concluded that, with adherence to the procedures as described herein as well as incorporation of specific regulatory permit requirements, the environmental effects of the proposed demolition, construction, and improvements, are not significant and that preparation of an Environmental Impact Statement (EIS) is not warranted. For these reasons, a FONSI is made. An EA, dated December 2012, is attached.



THOMAS E. MURPHY, Colonel, USAF
Commander, 47th Flying Training Wing

6 Feb 13

Date



Laughlin Air Force Base

FINAL
ENVIRONMENTAL ASSESSMENT FOR
MULTIPLE PROJECTS

December 2012

COVER SHEET

FINAL ENVIRONMENTAL ASSESSMENT FOR MULTIPLE PROJECTS AT AT LAUGHLIN AIR FORCE BASE, TEXAS

Proposed Action: The 47th Flying Training Wing (47 FTW) proposes to Laughlin AFB proposes to implement several projects in order to improve its operational efficiency and to address ground and flight safety deficiencies at the airfield.

Report Designation: Final Environmental Assessment (EA).

Responsible Agency: U.S. Air Force (USAF), 47 FTW, Laughlin AFB.

Affected Location: Laughlin AFB, Texas.

Abstract: Laughlin AFB proposes to implement several projects in order to improve its operational efficiency and to address ground and flight safety deficiencies at the airfield. Collectively, the projects would involve demolishing 23 facilities; replacing them with facilities that meet Air Force facility requirements, are energy efficient, have a lower operating cost than current facilities, enhance mission accomplishment, and improve the stormwater drainage system and slopes at the Laughlin AFB airfield. The Proposed Action would consist of the following separate projects:

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- Demolish the existing outdoor small arms range (Building 1100), and construct a new 36,560 SF fully-contained indoor range approximately 600 feet to the north; and,
- Repair and improve stormwater drainage and steep slopes at the Laughlin AFB airfield.

Alternatives for the proposed projects were evaluated as part of this EA including the No Action Alternative. Additionally, several alternatives were eliminated from further consideration during the scoping process.

For additional information on this EA, contact Laughlin AFB NEPA Program Manager by mail at 47 CES/CEAN, 251 Fourth Street, Bldg. 100, Laughlin AFB, TX 78843 or by phone at (830) 298-5694.

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1.0 PURPOSE AND NEED

1.1 INTRODUCTION

The United States Air Force (Air Force), Laughlin Air Force Base (AFB) proposes to improve its operational efficiency by implementing a program of targeted demolition, construction, and repair. The proposed program would demolish the Aerospace Physiology Facility (Building 380), Small Arms Range (Building 1100), and several housing units (Buildings 9200–9220). These facilities either do not meet current Air Force standards or represent a high life cycle cost for the installation because of their age or condition. To better meet current and projected operation requirements, new facilities would be constructed at separate locations. Additionally, several ground and flight safety conditions resulting from undersized and inefficient stormwater conveyance systems, and steep slopes at the airfield would be corrected. Implementation would also assist Laughlin AFB in meeting the 20/20 by 2020 goal; a 20 percent reduction in the Air Force’s infrastructure life cycle funding requirement by 2020 through such strategies as increased efficiency and demolition.

This environmental assessment (EA) assesses the potential environmental consequences associated with implementing the Proposed Action, several alternatives, and the No Action Alternative in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, as amended (42 *United States Code* [U.S.C.] 4321 6 *et seq.*); the Council on Environmental Quality (CEQ) Regulations for Implementing Procedural 7 Provisions of NEPA (40 *Code of Federal Regulations* [CFR] 1500-1508); Title 32 CFR Part 989; and other applicable federal and local regulations.

For this EA, short-term, long-term, and cumulative effects were evaluated. Short-term effects are those that would occur during the project period and would end at project completion. Long-term effects refer to those effects that would be expected to persist past project completion. Cumulative effects refer to the potential environmental effects resulting from “the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 CFR 1508.7). The Air Force is the lead agency for this EA.

1.2 LOCATION

Laughlin AFB is in southeastern Val Verde County, Texas, approximately 149 miles west of San Antonio, Texas, and 7 miles east of Del Rio, Texas (Figure 1-1). The main base encompasses approximately 4,355 acres. All sites that are part of this Proposed Action and Alternatives are entirely within the main base area.

1.3 INSTALLATION MISSION

Laughlin AFB is an Air Force Air Education and Training Command (AETC) installation tasked with the primary mission of conducting Specialized Undergraduate Pilot Training (SUPT) for the U.S. Air Force, Air Force Reserve, Air National Guard, and allied nation forces using T-6A, T-38C, and T-1A aircraft. The host unit at Laughlin AFB is the 47th Flying Training Wing (FTW), which is responsible for the day-to-day operation of the base and conducting SUPT. The 47 FTW commands a flying operation of more than 88,607 flying hours and 49,754 sorties per year.

Approximately 2,050 active-duty military personnel are assigned to Laughlin AFB. About half reside on-base, and the rest reside in the surrounding communities. The base employs a civilian workforce of approximately 1,187.

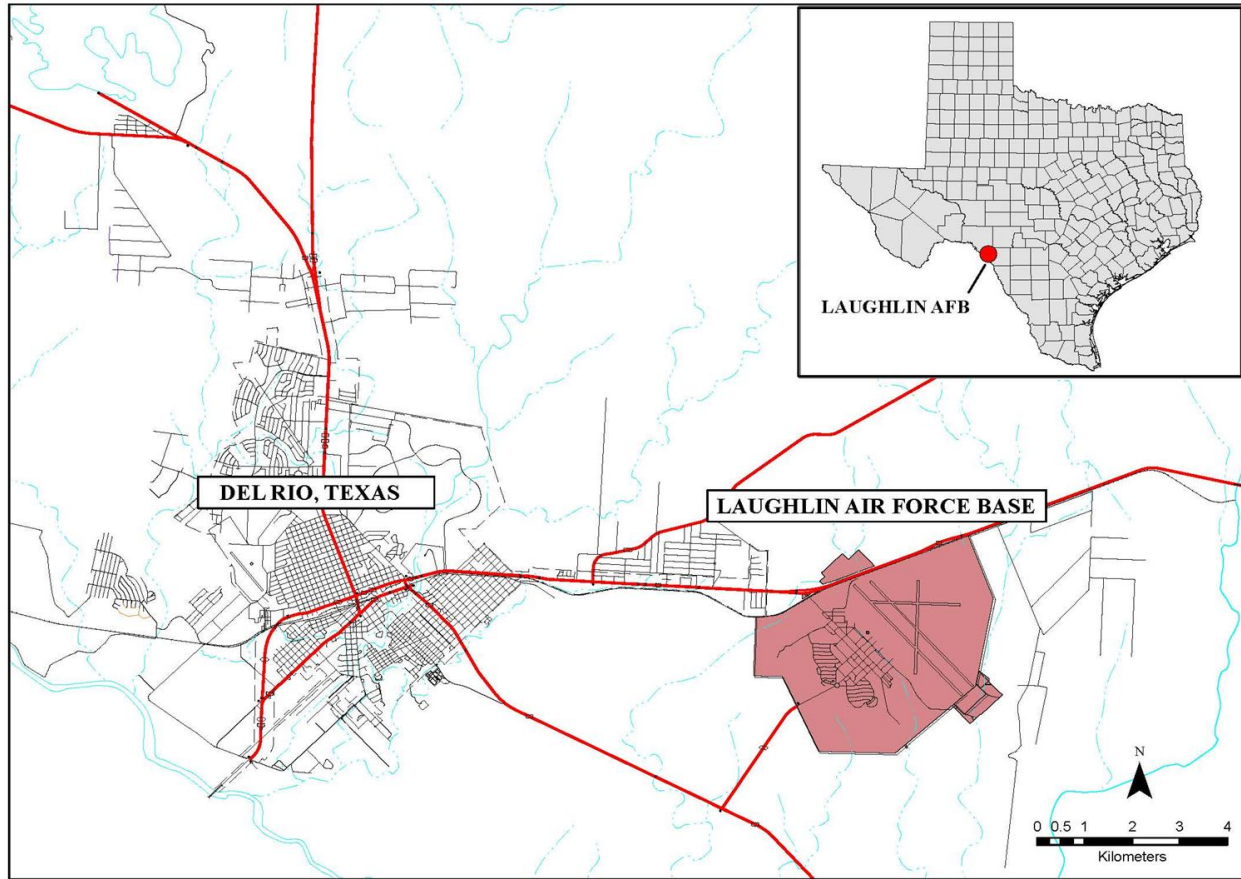


Figure 1-1. Location of Laughlin AFB

1.4 PURPOSE OF AND NEED FOR ACTION

1.4.1 Need

Due to decreased funding levels over the past decade, the Air Force has diverted funds from facility maintenance programs to other areas, including excess infrastructure. This has resulted in the severe deterioration of buildings and the ability of those buildings to adequately support mission requirements. In 2002, the DoD reported that 68 percent of its facilities had significant deficiencies that effected their ability to meet mission needs (USA, 2008).

The Air Force 2011 Civil Engineering (CE) Strategic Plan identified as one of its goals, the need to “Build Sustainable Installations.” As part of this goal, several objectives were developed in order to outline the focus of installation-level asset management. The emphasis of these objectives is to focus sustainment, restoration, and modernization (SRM) efforts on the infrastructure necessary to accomplish the mission. Resources should be diverted away from excess, obsolete, and underutilized facilities. Installation civil engineers are tasked with looking for ways to offset the reduction of available funds by improving facility efficiencies. One of the ways this is to be accomplished is through the reduction of long-term facility operating costs and recapitalization requirements (USAF, 2011).

The Proposed Action is needed to help the Air Force and Laughlin AFB to better manage facility infrastructure to support mission-related activities; to reduce the amount of funds expended on excess, deteriorating, or obsolete infrastructure; and to help meet the goals of the 2011 CE Strategic Plan.

Currently, the installation must divert available resources to repair and maintain (including renovate) aging facilities. This results in maintaining a status quo rather than being able to improve facilities to meet changing mission requirements. Older facilities generally do not meet current facility requirements, are not energy efficient, and require above average resources just to maintain them at an acceptable level.

Existing conditions at the airfield have resulted in damage to airfield pavements, which require extensive repairs, and steep slopes and obstructions in the airfield, which create safety hazards. The need for individual actions under the Proposed Action and Alternatives is presented below.

Aerospace Physiology Facility

The Aerospace Physiology Facility (Building 380) was constructed in 1969 and is used to train pilots on the physiological effects of flying at altitude and how to handle emergencies that may result in flight as a result of those effects. The building underwent renovation in 2011 to address some existing deficiencies and to extend its useful life until a new lab can be constructed. However, these are only intended to address short term concerns and do not address the long-term goals of providing a facility that can accommodate current and future training requirements in close proximity to the flight training area (Campus Center) as outlined in the 2011 General Plan. The lab is located approximately a 1/2 mile from other similar land uses and facilities in the Campus Center area. The distance often requires students to walk or bike to classes.

The current lab is in an area that is classified as a “medical” land use, however the lab conducts flight training classes and should be located with other “industrial” land uses near the flight line. This results in students commuting on foot or by bicycle to the building and back, reducing available training time. The building remains below validated space requirements and lacks the available land space for future expansion due to Anti-Terrorism Force Protection (AT/FP) requirements.

Student Officer Quarters (SOQ)

Laughlin AFB can accommodate 340 unaccompanied officers on base (LAFB, 2011i). Housing is provided in 21 duplexes (Buildings 9200–9220) in an area known as the Ciarfeo/Carlson Campus adjacent to the housing area, in three studio-style residences (Buildings 446, 449, and 450), and in residences off-base. Occasionally, student officers are accommodated in privatized family housing as roommates. An assessment of the current condition of the unaccompanied housing was completed in 2011 as part of the Dormitory Master Plan (DMP). On the basis of that assessment, the 9200-series buildings have been classified as inadequate and unserviceable, representing a high life-cycle cost to maintain and repair. The annual cost to maintain the buildings in an acceptable condition draws resources from other installation facilities. Additionally, the 9200-series buildings are located away from the other unaccompanied officer residences and flight training areas. This negatively affects the training mission of the base by reducing the time and opportunities available for students to study, get adequate rest, and build camaraderie with other students.

Small Arms Range

Laughlin AFB’s Small Arms Facility (Building 1100) consists of an 862-foot open and partially contained outdoor range and a 13,433 SF building. The range has seven fewer firing positions than required by Engineering Technical Letter (ETL) 11-18, *Small Arms Range Design and Construction*, and only frangible ammunition¹ is used because of the range’s configuration and Surface Danger Zone (SDZ). The SDZ is the portion of the range in the horizontal plane that could be impacted by firing a particular weapon. The SDZ includes the area between the firing line and the target line, an impact area, a ricochet

¹ A projectile that is a composite of hybrid materials either pressed together at high pressure or glued together with adhesives that breaks apart when it hits a hard surface.

trajectory area, and a secondary danger area (USAF, 2011). The existing firing range does not have an adequate SDZ to contain projectiles based on current requirements.

Frangible ammunition is only permitted to be fired on a temporary basis if space constraints do not allow for the use of standard ball ammunition. Owing organizations are directed to correct the deficiency to allow for the firing of standard ball ammunition. Additionally, existing partially contained ranges that don't have the required SDZ must be programmed for upgrade or replacement to meet either full-distance, non-contained range criteria, fully contained range criteria, or the footprint of the existing deficient SDZ must be increased to meet the 50 percent SDZ requirement for a partially contained range. (USAF, 2011). At Laughlin AFB this would require a 5,905 foot firing distance, which cannot be accommodated at its current location.

Under the current guidelines for range construction, only two types of ranges are permitted to be constructed; the uncontained range and the fully contained indoor range. Based on the Surface Danger Zone (SDZ) requirements for the firing of 5.62mm ammunition (used in the M16A12 rifle), an uncontained range would require a minimum of 11,811 feet (3,600 meters) of distance from the firing line (USAF, 2011). There are no locations on Laughlin AFB that can accommodate this requirement.

The range undergoes frequent maintenance, including pea gravel replacement, which requires the range to be closed, further limiting training opportunities. When the range is closed, personnel are required to travel to another installation to qualify. Dyess, Lackland, and Goodfellow AFBs have all hosted Laughlin AFB personnel in the past. However, the travel time each way can range from 2.5 to 5 hours, which limits the time personnel can be at their workcenters and negatively affects mission accomplishment.

Outside the range's designated safety berms is evidence of ricochet debris, the result of having used full-metal-jacket ammunition² before the use of frangible ammunition. The debris outside the safety berms contributes to elevated lead levels in the soil surrounding the facility. Additional Air Force training directives require the ability of a vehicle to access the facility to conduct tactical training. This is not available under the current range configuration. The inability to provide effective and timely training of personnel can result in members not being available to deploy when required.

Airfield Improvement Projects

Laughlin AFB has four stormwater drainage areas, numbered 1 through 4, each of which discharges to an outfall. The stormwater drainage infrastructure—specifically, the lateral pipes—in Drainage Area 1, which includes First Area and part of the airfield, has inadequate capacity to move stormwater. During moderate to heavy rain events, stormwater floods Drainage Area 1 and the portion of the airfield in it, resulting in large amounts of water on the apron and the flight line. Stormwater flows between the concrete seams on the apron, eroding base and sub-base materials under the apron and causing materials to be deposited on the airfield pavements resulting in Foreign Object Debris (FOD). Foreign Object Debris presents a serious hazard to personnel and aircraft because it can be blown around by running engines or ingested into an engine or flight surface and cause severe damage. The existing stormwater infrastructure also leaks and creates subsurface cavities.

On the southeastern edge of the center runway (13/31C) the slope is not compliant with Unified Facilities Criteria 3-260-01, *Airfield and Heliport Planning and Design* (UFC) for the airfield. Additionally, culverts and ditches in the vicinity are in the primary surface area clear zone and require waivers. This creates a hazard for aircraft that overrun or otherwise stray from the runway during takeoffs or landings. Pilots or aircraft, or both could be severely harmed as a result.

² Lead-encased projectiles in a shell of a copper-nickel blend.

1.4.2 Purpose

The overall purpose of the Proposed Action is to increase operational efficiencies at Laughlin AFB by replacing facilities and infrastructure that have been identified by the installation as representing a high life-cycle cost (including repair and maintenance), are insufficient to meet current or projected mission requirements, or present safety hazards to flying operations. This would be accomplished by demolition, construction, and repair of current facilities and infrastructure. These actions would allow the installation to more efficiently allocate its resources to those facilities that directly support mission activities. The purpose of individual actions under the Proposed Action and Alternatives is presented below.

Aerospace Physiology Facility

The purpose of constructing a new, energy efficient, and larger Aerospace Physiology Facility within the Campus Center Area, and the demolition of the current facility (Building 380) would be to provide for a long-term replacement building that meets current Air Force facility requirements, facilitates more compatible land use, and reduces the commuting time by students between the training facilities located at the flight line and the lab, thereby maximizing available training time. A new lab would provide students with a training facility that meets all the SUPT training requirements.

Student Officer Quarters

The purpose of constructing a new, consolidated SOQ and demolishing the existing housing units (Buildings 9200-9200) is to eliminate inadequate and unserviceable student officer housing and replace it with a new dormitory that meets current Air Force standards for unaccompanied housing. The new dormitory would allow Laughlin AFB to centralize all student officer housing in one location near the Campus Center area. Acceptable on-base housing would maximize the amount of training time available to students and provide for appropriate rest, relaxation, and assist in developing camaraderie by reducing commuting time between residences and training facilities.

Small Arms Range

The purpose of demolishing the Small Arms Facility and constructing a new fully enclosed indoor facility is to eliminate the restrictions on training and qualification by increasing the amount of firing positions from the current seven positions, to the Air Force standard of 14. Additionally, the new range would reduce the amount of range closures as a result of maintenance and operational risk management (ORM) factors. A range that meets requirements as outlined in the ETL, would allow personnel to become trained more efficiently and return to their workcenters sooner, increasing productivity.

Airfield Improvement Projects

The purpose of the Airfield Improvement Projects is to expand and enhance the existing stormwater drainage infrastructure and correct safety deficiencies related to steep slopes and the presence of drainage culverts in the primary surface area clear zone at the Laughlin AFB airfield. The improvements would eliminate flooding problems causing damage to airfield pavements, correct unsafe slope conditions at the end of the center runway (13/31C), and significantly reduce the presence of FOD on the airfield.

1.5 ALTERNATIVE SELECTION STANDARDS

To meet the purpose of and need for the proposed projects, alternatives must meet the following standards presented as follows.

1 ***Aerospace Physiology Facility***

- 2 • Location: Must be near other similar types of training facilities to minimize time students are
3 required to transit from one location to another. Must be in separate location to maintain training
4 activities at the existing facility while being constructed.
- 5 • Size: Site must be able to accommodate a facility that is sized to include all required components
6 as outlined in AFH 32-1084 including required parking.
- 7 • Land Use: Must be compatible with surrounding land use and not create undesirable land use
8 interactions.
- 9 • Security: Must be able to implement appropriate stand-off distances from roadways, parking, and
10 adjacent buildings.
- 11 • Environmental: Must not be on existing Environmental Restoration Program (ERP) sites. Must
12 allow for appropriate stormwater controls.
- 13 • Utilities: Must be in close proximity to existing utility systems.

14 ***Student Officers Quarters***

- 15 • Location: Must be located within Officer Dormitory Campus and near Campus Center Area in
16 order to minimize commute times. Proximity to community center and medical facilities is
17 desirable.
- 18 • Size: Must be able to accommodate current and projected personnel. Must meet current Air Force
19 standards for housing unaccompanied officers.
- 20 • Land Use: Must be compatible with surrounding land use and not create undesirable land use
21 interactions.
- 22 • Security: Must be able to implement appropriate stand-off distances from roadways, parking, and
23 adjacent buildings.
- 24 • Environmental: Must not be on existing ERP sites. Must allow for appropriate stormwater
25 controls to be implemented.
- 26 • Utilities: Must be in close proximity to existing utility systems.

27 ***Small Arms Range***

- 28 • Location: Must be away from main base population areas.
- 29 • Size: Must be able to accommodate 14 firing positions and related administrative, storage and
30 instructional space.
- 31 • Land Use: Must be compatible with surrounding land use and not create undesirable land use
32 interactions.
- 33 • Security: Must be able to implement appropriate stand-off distances from roadways, parking, and
34 adjacent buildings. Must be able to be secured when unoccupied.
- 35 • Environmental: Must not be on existing ERP sites. Must allow for appropriate stormwater
36 controls.
- 37 • Utilities: Must be in close proximity to existing utility systems.

Airfield Improvement Projects

- Location: Must be located at the airfield where damage is occurring or where slopes do not meet requirements.
- Size: Infrastructure must be able to accommodate anticipated stormwater events. Slopes must conform to UFC requirements.
- Environmental: Must not result in significant erosion.

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

Under the Proposed Action, the Air Force would undertake up to five projects, which are described in detail below. Collectively, the projects would involve demolishing 23 facilities; replacing them with facilities that meet Air Force facility requirements, are energy efficient, have a lower operating cost than current facilities, and enhance mission accomplishment. The Proposed Action also includes improvements to the stormwater drainage system and slopes at the Laughlin AFB airfield. The individual projects under the Proposed Action and Alternatives are presented below.

Table 2-1 provides a brief overview of the projects associated with the Proposed Action.

Table 2-1. Projects identified under the Proposed Action

Building number	Year constructed	Facility or infrastructure	Proposed Action	Area affected (SF)	New area (SF)	Square footage change (%)
380	1969	Facility	Demolish the Aerospace Physiology Facility and construct a new facility in another location	8,212	10,775	31%
9200–9220	1969	Facility	Demolish 21 officer quarters duplexes and construct one dormitory facility at a new location	90,962	37,391	(59%)
1100	1982	Facility	Demolish the Small Arms Facility and construct a new indoor range facility	13,433	36,560	172%
Total change in square footage:						(25%)
N/A	N/A	Infrastructure	Expand and improve the drainage infrastructure in the flight line in Drainage Area 1	5,832 (linear feet)	N/A	N/A
N/A	N/A	Infrastructure	Correct the steep slopes at the end of runway 13/31C	~70,000 (cubic yards)	N/A	N/A

2.1 AEROSPACE PHYSIOLOGY FACILITY

Proposed Action

Under the Proposed Action, a new facility (Figure 2-1) would be constructed directly adjacent to and slightly southwest of the existing Flight Simulator facility (Building 328). The current facility, Building 380, would be demolished. To ensure continuity of training operations, the existing lab would continue to house training functions until the new facility is constructed. The proposed facility would have a footprint of 10,775 SF, an increase in facility size of 2,563 SF (31 percent). Construction would include site clearance, excavation, foundation, utility and infrastructure systems, fire detection and protection systems, masonry exterior, standing seam metal roof, landscaping, and communications wiring and equipment.

The maximum total area to be disturbed would be 1.5 acres, though it is expected that actual disturbance would be less than that. To minimize the potential of excessive erosion of exposed soils from stormwater runoff, various measures would be implemented during construction and demolition (C&D). These could include such measures as silt fences, covering exposed dirt piles, and temporary berms. Upon project

completion, disturbed areas would be graded, revegetated, and stabilized to prevent excessive erosion, reduce runoff velocity, and to control the proliferation of noxious weeds.

Demolition of the existing facility would consist of completely tearing down and removing building structures, equipment, and related impervious surfaces such as parking lots in the building demolition project area. Areas undergoing demolition or construction would be fenced off and *no trespassing* signs would be posted. Construction equipment would be secured when not in use. Utility connections at the project site would be demolished up to and capped at the secondary feed where feasible. Solid and hazardous waste (including asbestos-containing materials [ACM] and lead-based paint [LBP]) would be disposed of consistent with federal, state, and installation requirements for handling and disposal, and a waste disposition report detailing the disposal location provided to the installation. Potential recycling opportunities, such as from copper piping, aluminum, and steel, would be identified by the installation and coordinated with the demolition contractor to ensure that materials generated during demolition are recycled to the greatest extent possible.

New building construction would comply with EO 13514, *Strengthening Federal Environmental, Energy, and Transportation Management* and EO 13423, *Federal Leadership in Environmental, Energy, and Economic Performance*. These EOs provide instruction to federal agencies to meet goals related to energy efficiency, use of renewable energy, reducing water consumption, and other sustainable practices. Noise Level Reduction (NLR) measures would be incorporated into the design and construction of the building.

The Proposed Action meets the recommendation in the 2010 General Plan to relocate the existing facility to an area in the Campus Center and meets all of the selection standards outlined in Section 1.

Alternative A

Alternative A would construct a new Aerospace Physiology lab as an addition to the Flight Simulator facility (Building 328). Under this alternative, the facility's size would be reduced as it is expected that some of the administrative functions would likely be shared within existing space in Building 328. Construction and demolition techniques would be similar to those described under the Proposed Action.

Alternative A meets the recommendation in the 2010 General Plan to relocate the existing facility to an area within the Campus Center and meets all of the selection standards as outlined in Section 1.

No Action Alternative

Under the No Action Alternative a new Aerospace Physiology Facility would not be constructed. The Aerospace Physiology Building would continue to be used for flight training classes. The existing facility would be unable to accommodate any increased requirements to the flight training program and it would continue to be located away from other similar types of facilities now at the Campus Center, thereby reducing students' available training time.

Alternatives Considered but Eliminated from Further Consideration

Alternative off-base locations to conduct tasks associated with Aerospace Physiology Facility were reviewed. The Air Force determined that no existing facility is near the base that could support the required tasks. If the Aerospace Physiology Facility were to be off the base, students would be required to regularly travel from the base to the City of Del Rio, Texas, decreasing their time for study and other activities.

An additional alternative considered would be to renovate, or demolish and rebuild the existing facility to bring it up to the current standards. This alternative was eliminated because no other facilities could

accommodate the flight training functions during a large-scale renovation or complete rebuild. It also would not meet the purpose of facilitating better land use compatibility, grouping similar facility use functions together, and reducing student commute times.



Figure 2-1. Proposed location of the Aerospace Physiology Facility

2.2 STUDENT OFFICER QUARTERS

Proposed Action

Under the Proposed Action, Laughlin AFB would construct a new two-story, pre-engineered, steel frame facility with an associated parking area about 500 feet southwest of Building 446 (Figure 2-2) and demolish the facilities at the Ciarfero/Carlson Campus (Buildings 9200–9220). The existing parking lot at Building 446 would join the new lot, and lighted vehicle canopies would be constructed. The total decrease in square footage from demolishing the existing buildings is 53,571 SF or 59 percent. Additionally, a picnic pavilion, landscaping with a sprinkler system, and new pathways would be constructed. Solar panels could be included on the new building or on the parking canopies in the future.

The maximum total area to be disturbed could be up to 4.5 acres, although actual disturbance is expected to be less. To minimize the potential of excessive erosion of exposed soils from stormwater runoff, various measures would be implemented during C&D. Those could include such measures as silt fences, covering exposed dirt piles, and temporary berms. Upon project completion, disturbed areas would be

graded, revegetated, and stabilized to prevent excessive erosion, reduce runoff velocity, and control the proliferation of noxious weeds. Additional stormwater runoff controls and strategies such as Low-Impact Development would be implemented at the project site.

Demolishing the existing facilities would consist of completely tearing down and removing building structures, equipment, and related impervious surfaces such as driveways in the building demolition project area. Areas undergoing demolition or construction would be fenced off and *no trespassing* signs would be posted. Construction equipment would be secured when not in use. Utility connections at the project site would be demolished up to and capped at the secondary feed where feasible. Solid and hazardous waste (including ACM and LBP) would be disposed of consistent with federal, state, and installation requirements for handling and disposal, and a waste disposition report detailing the disposal location provided to the installation. Potential recycling opportunities, such as from copper piping, aluminum, and steel, would be identified by the installation and coordinated with the demolition contractor to ensure that materials generated during demolition are recycled to the greatest extent possible.

New building construction would comply with EO 13514, *Strengthening Federal Environmental, Energy, and Transportation Management* and EO 13423, *Federal Leadership in Environmental, Energy, and Economic Performance*. These EOs provide instruction to federal agencies to meet goals related to energy efficiency, use of renewable energy, reducing water consumption, and other sustainable practices.

The Proposed Action meets the recommendation in the 2010 General Plan to construct a new SOQ in the vicinity of the existing unaccompanied residences and meets all of the selection standards outlined in Section 1.

No Action Alternative

The No Action Alternative would not construct a new SOQ on Laughlin AFB. Students would remain in the existing substandard housing units. This would result in continual increased repair and maintenance costs to the Air Force. Additionally, students would continue to reside away from base services and flight training areas.

Alternatives Considered but Eliminated from Further Consideration

One additional location was considered for constructing a new SOQ. The proposed location would have been at the former sites of Buildings 9200–9220, which are proposed for demolition. The site, near the privatized family housing area, would have resulted in a facility that was too far from the other student officer residential buildings and the Campus Area where the majority of the students' daily activity takes place. This alternative would not be expected to significantly reduce commute times and would increase daily vehicle traffic through residential areas.



Figure 2-2. Proposed location of Student Officers Quarters

2.3 SMALL ARMS RANGE

Proposed Action

The Proposed Action would construct a new, 36,560-SF, fully contained, indoor firing range just north of the existing location (Figure 2-3). As part of this project, the current facility (Building 1100) would be demolished. The new range would allow for the placement of moving targets and various shooting scenarios and would be capable of accommodating a vehicle entering the facility. The facility would also house the Combat Arms Training and Maintenance (CATM) functions such as classrooms, an arms vault, storage of supplies and equipment, weapons maintenance areas, and latrines. The new facility would be approximately 2.7 times the size of the current range.

Work on the site would include clearing the site of vegetation, excavation, pouring the foundation, utility and infrastructure systems, fire detection and protection systems, masonry exterior, landscaping, and communications wiring and equipment.

To minimize the potential of excessive erosion of exposed soils from stormwater runoff, various measures would be implemented during C&D. Those could include such measures as silt fences, covering of exposed dirt piles, and temporary berms. Upon project completion, disturbed areas would be graded, re-vegetated, and stabilized to prevent excessive erosion, reduce runoff velocity, and control the

1 proliferation of noxious weeds. Soil remediation to address lead from the historic use of non-frangible
2 munitions would be evaluated and accomplished under a different program.

3 Demolishing the existing facility would consist of completely tearing down and removing building
4 structures, equipment, and related impervious surfaces such as parking lots within the building demolition
5 project area. Areas undergoing demolition or construction would be fenced off and *no trespassing* signs
6 would be posted. Construction equipment would be secured when not in use. Utility connections at the
7 project site would be demolished up to and capped at the secondary feed where feasible. Solid and
8 hazardous waste (including ACM and LBP) would be disposed of consistent with federal, state, and
9 installation requirements for handling and disposal, and a waste disposition report detailing the disposal
10 location provided to the installation. Potential recycling opportunities, such as from copper piping,
11 aluminum, and steel, would be identified by the installation and coordinated with the demolition
12 contractor to ensure that materials generated during demolition are recycled to the greatest extent
13 possible. Demolition and possible remediation of the existing range would be completed under a separate
14 project.

15 New building construction would comply with EO 13514, *Strengthening Federal Environmental, Energy,*
16 *and Transportation Management* and EO 13423, *Federal Leadership in Environmental, Energy, and*
17 *Economic Performance*. These EOs provide instruction to federal agencies to meet goals related to
18 energy efficiency, use of renewable energy, reducing water consumption, and other sustainable practices.

19 Prior to construction, the installation would survey the site in order to determine the presence of special
20 status species and/or their nests. If species or nests are discovered, demolition and construction activities
21 would not occur until a qualified biologist determines that the species has migrated from the area or the
22 site location would be re-evaluated for suitability.

23 The Proposed Action meets the recommendation in the 2010 General Plan to construct a new indoor small
24 arms range and meets all the selection standards outlined in Section 1.



Figure 2-3. Proposed location for small arms range

Alternative A

Alternative A would construct the Small Arms range in the southwest portion of the installation (Figure 2-4), south of Laughlin Road and west of the Leaning Pines Golf Course, in the vicinity of the West Gate. This location meets all the selection standards outlined in Section 1. Under this alternative, the existing facility would still be demolished. The size and construction techniques of the proposed facility would be the same as described under the Proposed Action.

No Action Alternative

The No Action Alternative would not construct a new Small Arms range. Personnel would be transported to other Air Force bases (likely Lackland AFB) in order to complete their training/certification. The result would be a loss of productivity and availability of personnel due to the significant travel times associated with training at other installations. Additionally, delinquent training requirements could mean that some deployable personnel would not be worldwide qualified for deployment. While the existing range could continue to be used in the short term, it does not meet current Air Force standards and would likely be closed in the future.



Figure 2-4. Alternative A location for the small arms range

Alternatives Considered but Eliminated from Further Consideration

A number of alternatives were considered but eliminated because they do not meet the overall purpose and need. A site at the northwest corner of the base was considered but was eliminated because of a lack of paved access, absence of nearby utilities, presence of nearby wetlands, and the presence of ERP sites in the area. The use of off-site small arms facilities was also considered, but no local ranges comply with Air Force ORM standards.

2.4 AIRFIELD IMPROVEMENT PROJECTS

Proposed Action

Laughlin AFB has proposed to implement two projects at the airfield to correct safety hazards and eliminate the need for safety waivers (Figure 2-5). One project would expand and improve the stormwater drainage infrastructure along First Area and at the airfield. Under this project, a stormwater drainage system would be installed on the airfield and below First Area to connect to the drainage system along Barnes Street, which has adequate capacity for the combined flow. The project would involve about 5,832 linear feet of system expansions and improvements. Reinforced-concrete pipe and box culverts would be installed in the flight line and below Drainage Area 1, and utility lines would be relocated. Roads and sidewalks in the area of disturbance would be removed and replaced, and grassed

areas would be excavated and restored upon project completion. Any contaminated soils that would be disturbed would be backfilled into the same location they were removed from. The total estimated area of disturbance would be approximately 10.15 acres.



Figure 2-5. Proposed airfield improvements.

The other proposed project would correct the steep slopes at the end of runway 13/31C by modifying the existing drainage culverts and ditches in the primary surface area clear zone at the southeastern end of the center runway. This would be accomplished by adding approximately 70,000 cubic yards (CY) of fill and regrading the area to conform to the maximum grade of 10 percent as outlined in the UFC. To prevent excessive erosion, reduce runoff velocity, and control the proliferation of noxious weeds, disturbed areas in the project area would be graded, reseeded, and stabilized upon project completion.

The Proposed Action meets the recommendation in the 2010 General Plan to upgrade the drainage system in the First Area and install a drainage system on the airfield. It also meets the goals outlined in the 2010 General Plan to reduce the amount of airfield waivers.

Alternative A

Alternative A would implement the airfield stormwater drainage infrastructure improvements, but not the removal of drainage culverts. Under this alternative, the safety hazards present at the end of the center

runway would not be corrected, and waivers would still be required. The techniques for construction would be the same as described in the Proposed Action.

Alternative B

Under Alternative B, correction of slopes at the southeast end of runway C would be implemented but the airfield stormwater drainage infrastructure improvements would not. This would allow FOD hazards at the airfield to remain, thereby increasing the potential for damage to aircraft and injury to personnel. The techniques used for construction would be the same as described in the Proposed Action.

No Action Alternative

The No Action Alternative would result in neither project being implemented. Storm events at the airfield would continue to undercut the existing pavements and deposit FOD. Additionally, the steep slopes and drainage structures in the primary surface area clear zone would remain, resulting in the need for waivers and creating a safety hazard to aviators.

Alternatives Considered but Eliminated from Further Consideration

Given the nature of the deficiencies and the location, no other practicable alternatives exist.

3.0 AFFECTED ENVIRONMENT

This section describes relevant existing environmental conditions at Laughlin AFB for resources potentially affected by the Proposed Action and alternatives as described in Section 2. In compliance with guidelines in NEPA, CEQ regulations, and the requirements of 42 U.S.C. 4321–4347, CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500–1508), and 32 CFR Part 989 *et seq.*, Environmental Impact Analysis Process (formerly known as AFI 32-7061), the description of the existing environment focuses on those environmental resources potentially subject to effects. These resources and conditions are Land Use, Air Quality, Noise, Geology, Water Resources, Biological Resources, Cultural Resources, Socioeconomics, Environmental Justice, Transportation, Utilities and Infrastructure, and Hazardous Materials and Waste Management. The expected Region of Influence of potential effects, known as the ROI, is defined for each resource analyzed.

3.1 LAND USE

Land use refers to the activities that occur in an area and specifically the human modification of land, often for residential or economic purposes. It can also refer to use of land for preservation or protection of natural resources. Land use planning has an important effect on the human environment. Tools, such as land use plans, institute controls on the types of uses that are allowed within a specific area. The purpose of these controls is to ensure that undesirable or incompatible land uses do not occur and to help guide future development to meet the projected needs of the installation. This is accomplished by collocating facilities with similar functional relationships and segregating incompatible land uses. It is important as a means to ensure that sufficient land area exists for proposed activities and to identify any potential conflicts with local land use plans. This EA describes the on- and off-base land use resources that could be affected as a result of implementing the Proposed Action and alternatives.

The land use ROI consists of Laughlin AFB and vicinity. Vicinity consists of off-base land immediately adjacent to Laughlin AFB, and land belonging to the City of Del Rio or Val Verde County

Laughlin AFB land use classifications are listed in Table 3-1. About half of Laughlin AFB is devoted to airfield or airfield operations.

Although the airfield runway complex divides Laughlin AFB nearly in half, the eastern half of the base is virtually undeveloped. All the facilities that are part of the Proposed Action evaluated in this EA are in the western half of the base. The western side of the base contains the operations area, maintenance facilities, housing, administration, and recreation areas. Outdoor recreation, community commercial, and open space areas act as a buffer between the airfield/aircraft operations and maintenance areas and the residential areas of the installation (Laughlin AFB 2010a).

Aerospace Physiology Facility

The land use of the Aerospace Physiology Facility (Building 380) is classified as administrative and is bordered by medical, community service, and open space land use. The proposed site for the new aerospace facility is classified as open space land use and as developable land (which is defined as open space that is not subject to any land use compatibility or environmental constraints). This proposed site is bordered by administrative, industrial, outdoor recreation, and open space land use. The alternate site for the new Aerospace Physiology Facility is Building 328, which is classified as industrial land use and bordered by industrial, aircraft operation and maintenance, vehicle parking areas, open space, and outdoor recreation land use (Laughlin AFB 2010a).

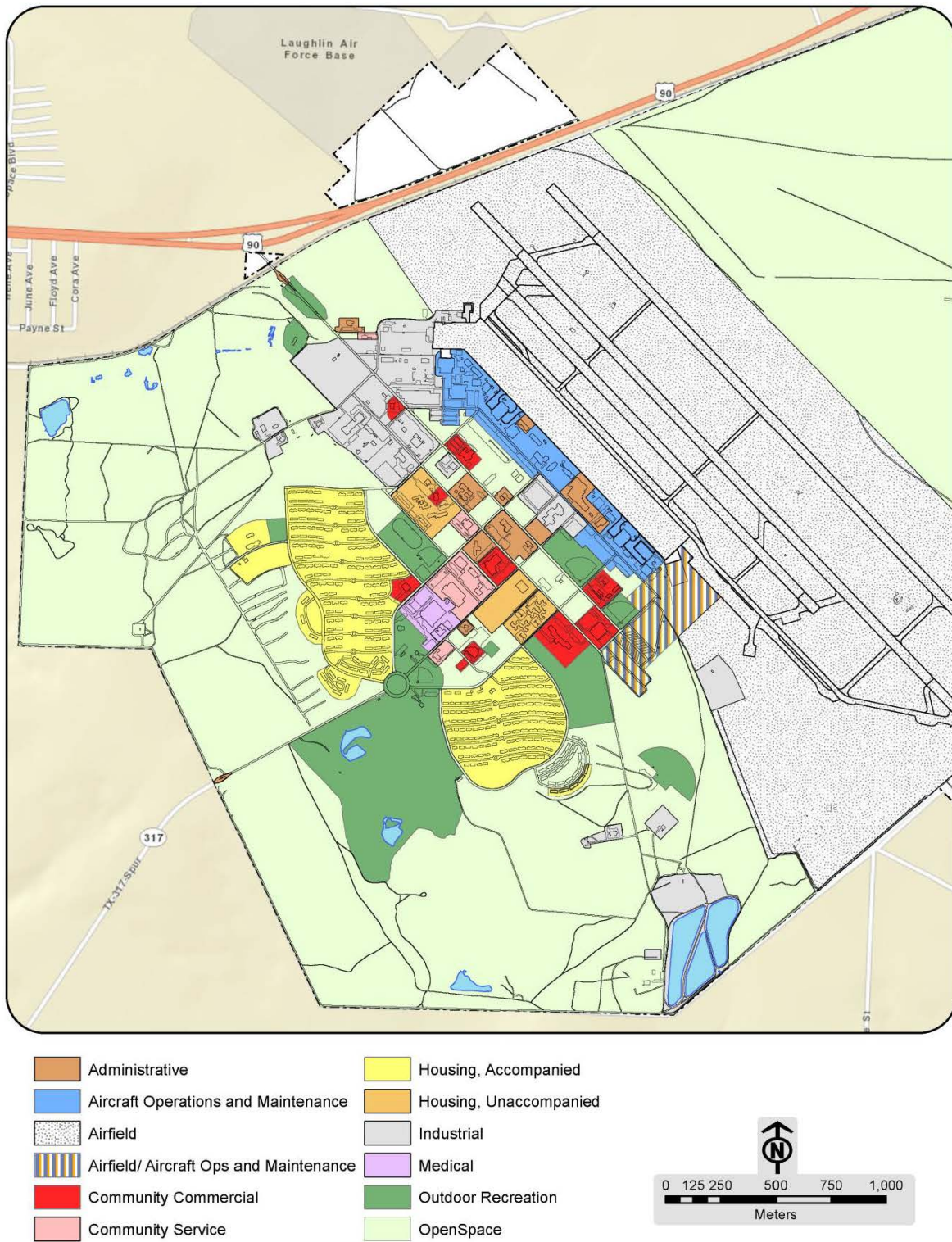


Figure 3-1. Projected future land use

Table 3-1. Laughlin AFB land use classifications

Land use category	Percent of total Laughlin AFB land	Typical facilities and features
Airfield	52.4%	Aircraft operating areas, runways, taxiways, aircraft parking aprons
Aircraft operations and maintenance	1.4%	Aircraft operations and maintenance, hangars, shops, docks, control tower, fire station
Industrial	4.6%	Base engineering, maintenance shops, storage, warehousing, utilities, fuels, fire training facilities
Administrative	0.5%	Headquarters, civilian personnel, law center, security operations, education center, flight training
Community commercial	1.1%	Commissary, exchange club, dining hall, recreation center, gym, bank
Community service	0.3%	Post office, chapel, library, child development center
Medical	0.3%	Clinic, medical storage
Accompanied housing	4.1%	Family housing
Unaccompanied housing	0.9%	Housing for single personnel, visitor housing
Outdoor recreation	5.3%	Outdoor courts and fields, swimming pool, golf course
Open space	29.1%	Conservative area, buffer space

Source: Laughlin AFB 2007

Student Officer Quarters

The existing SOQ (Buildings 9200–9220) land use is classified as unaccompanied housing. The buildings are at the southern end of the base’s developed area, just south of privatized family housing. This unaccompanied housing land use is bordered by accompanied housing and open space land use. The proposed new SOQ location would be more central on the base on land that is classified as open space and as developable land but that was previously classified as unaccompanied housing. The proposed new location is bordered by unaccompanied housing, community and commercial, community service, and open space land uses (Laughlin AFB 2010a).

Small Arms Facility

The Small Arms Facility land use is classified as industrial. It is at the southern end of the base and is bordered by industrial and open space land uses. The proposed site and alternate site for the new Small Arms Facility are on land classified as open space and as developable land. The proposed site is just north of the existing Small Arms Facility and is bordered by industrial and open space land use (Laughlin AFB 2011). The alternate site is bordered by open space and administrative land use (the Laughlin AFB West Gate) on base, and by open space/rangeland off base (to the west).

Airfield Improvement Projects

The stormwater drainage infrastructure project is on the airfield, where the land use is classified as airfield. The airfield is bordered by undeveloped open space to the east and the operational areas of the base to the west. The land use immediately adjacent to the airfield to the west is classified as aircraft operations and maintenance (Laughlin AFB 2010a).

3.2 AIR QUALITY

The Clean Air Act (CAA) of 1970 requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for six common air pollutants also known as criteria pollutants. Air Quality in an area is measured by the atmospheric concentration of these pollutants: carbon

monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM_{2.5}, PM₁₀), and sulfur dioxide (SO₂). The NAAQS represent the maximum allowable atmospheric concentrations for these pollutants. Primary pollutants, such as CO and directly emitted particulate matter, have a localized region of effects generally restricted to the immediate vicinity of the source of emissions. Secondary pollutants, such as O₃ and carbon dioxide (CO₂), have a broader region of effects. Table 3-2 shows the thresholds associated with each criteria pollutant.

Table 3-2. National ambient air quality standards

Criteria pollutant		Averaging time	Concentration	Exceedence threshold
Carbon monoxide (CO)		8-hour	9 ppm	Not to be exceeded more than once per year
		1-hour	35 ppm	
Lead (Pb)		Rolling 3 month average	0.15 µg/m ³	Not to be exceeded
Nitrogen dioxide (NO ₂)		1-hour	100 ppb	98th percentile, averaged over 3 years
		Annual	53 ppb	Annual mean
Ozone (O ₃)		8-hour	0.075 ppm	Annual fourth-highest daily maximum 8-hr concentration averaged over three years
Particulate matter	PM _{2.5}	Annual	15 µg/m ³	Annual mean, averaged over three years
		24-hour	35 µg/m ³	98th percentile, averaged over three years
	PM ₁₀	24-hour	150 µg/m ³	Not to be exceeded once per year on average over three years
Sulfur dioxide (SO ₂)		1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, average over three years

Sources: 40 CFR Parts 50, 53, and 58; EPA 2012.

In addition to the six criteria air pollutants covered by federal ambient air quality standards, many compounds have been designated as hazardous air pollutants (HAPs), which are regulated primarily by emission limits on specific types of industrial emission sources. The NAAQS are defined in terms of concentration, either in parts per million (ppm) or micrograms per cubic meter [µg/m³].

Air quality management at Air Force installations is established in AFI 32-7040, *Air Quality Compliance*. AFI 32-7040 requires installations to achieve and maintain compliance with all applicable federal, state, and local standards. Air quality compliance involves prevention, control, abatement, documentation, and reporting of air pollution from stationary and mobile sources, if in nonattainment areas. Maintaining compliance with air quality regulations could require reducing or eliminating pollutant emissions from existing sources and controlling new pollution sources.

The ROI for Air Quality is the Metropolitan San Antonio Intrastate Air Quality Control Region (AQCR 217), which includes Val Verde County and Laughlin AFB. AQCR 217 is in attainment for all criteria pollutants (EPA 2012a).

3.2.1 Climate and Greenhouse Gases

Val Verde County is characterized by hot summers and cool winters. The average high and low temperatures at Laughlin AFB in January, the coldest month, is 62.8 degrees Fahrenheit (°F), (17.1 degrees Celsius [°C]) and 39.7 °F (4.3 °C) respectively, and an average high and low temperature in July, the warmest month, is 96.2 °F (35.7 °C) and 74.3 °F (23.5 °C) respectively. The average annual precipitation is 18.8 inches (47.8 centimeters) per year. June is the wettest month with an average rainfall of 2.3 inches (5.8 centimeters) (Idcide 2012).

Greenhouse gases (GHGs) are another air pollutant category of general concern. GHGs absorb infrared radiation and radiate a portion of that radiation toward the earth's surface, thus trapping heat and warming the atmosphere. The most important GHG compounds are CO₂, methane (CH₄), and nitrous oxide (N₂O). The overall global warming potential of GHG emissions is typically presented in terms of CO₂ equivalents (CO₂e), using equivalency factors.

EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, outlines policies intended to ensure that federal agencies evaluate climate-change risks and vulnerabilities, and to manage the short- and long-term effects of climate change on their operations and mission. The EO specifically requires the Air Force to measure, report, and reduce its GHG emissions from both direct and indirect activities. The Department of Defense (DoD) has committed to reducing GHG emissions from non-combat activities by 34 percent by 2020 (DoD 2010). In addition, the CEQ recently released draft guidance on when and how federal agencies should consider GHG emissions and climate change in NEPA analyses. The draft guidance includes a presumptive effects threshold of 27,563 tons per year (25,000 metric tons per year) of CO₂ equivalent emissions from a federal action (CEQ, 2010).

3.2.2 Regional Air Standards

Laughlin AFB is considered to be a synthetic minor emission source. A synthetic minor source is a source that has specific emission restrictions placed on it below the threshold of a major source. Laughlin AFB has one minor source operating permit for a corrosion control facility and maintains permits by rule (PBR) for its remaining stationary emission sources. Table 3-3 compares the 2010 actual and permitted emissions for Laughlin AFB with the 2008 Val Verde County air emissions inventory. Val Verde County emissions include emissions from point, area, non-road mobile, and on-road mobile sources. Laughlin AFB emissions are from stationary sources such as boilers, generators, surface coatings, paint booths, storage tanks, and fueling operations, among others. Mobile and biogenic (from natural sources) source emission inventories have not been determined for Laughlin AFB.

Table 3-3. Significant air emissions—permit limits versus actual (tons/year)

	PM _{2.5}	PM ₁₀	SO ₂	NO _x	VOC	CO	Pb
Val Verde County ^a	460	3,390	128	2,794	25.2	9,795	N/A
Permit 34801	23.6	23.6	10	45	94	99.5	N/A
Laughlin AFB Actual ^b	0.35	3.56	0.45	7.82	24.52	8.99	0.00

Sources: EPA 2008a, 2008b; Laughlin AFB 2010

Notes:

a. AIRData comes from an extract of EPA's National Emission Inventory (NEI) Database; although the report is listed as 2008, data were collected from 2002 sources.

b. 2010 Laughlin AFB Air Emission Inventory

3.2.3 Noise

Sound is a physical phenomenon consisting of vibrations that travel through a medium, such as air, and are sensed by the human ear. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise intrusive. Human response to noise varies depending on the type and characteristics of the noise distance between the noise source and the receptor, receptor sensitivity, and time of day. Noise is often generated by activities essential to a community's *quality of life*, such as construction or vehicular traffic.

Sound varies by both intensity and frequency. Sound pressure level, described in decibels (dB), is used to quantify sound intensity. Hertz are used to quantify sound frequency. The human ear responds differently to different frequencies. *A-weighting*, measured in A-weighted decibels (dBA), approximates a

frequency response expressing the perception of sound by humans. Sounds encountered in daily life and their dBA levels are provided in Table 4-1.

The Noise Control Act of 1972 (P.L. 92-574) directs federal agencies to comply with applicable federal, state, interstate, and local noise control regulations. In 1974 EPA provided information suggesting that continuous and long-term noise levels in excess of a day-night average noise level (DNL) of 65 dBA are normally unacceptable for noise-sensitive land uses such as residences, schools, churches, and hospitals. Neither Texas nor Val Verde County maintains a noise ordinance.

The ROI for noise is the main base, directly adjacent surrounding areas, and areas affected by aircraft overflights.

Table 3-4. Common sounds and associated levels

Outdoor	Sound level (dBA)	Indoor
Motorcycle	100	Subway train
Tractor	90	Garbage disposal
Noisy restaurant	85	Blender
Downtown (large city)	80	Ringling telephone
Freeway traffic	70	TV audio
Normal conversation	60	Sewing machine
Rainfall	50	Refrigerator
Quiet residential area	40	Library

Source: Harris 1998

The military noise environment consists primarily of three types of noise zones: low, moderate, and high. AFI 32-7063, *Air Installation Compatible Use Program*, defines recommended noise limits from Air Force activities for established land uses with respect to environmental noise (USAF 2005). Three noise zones are defined in the regulation:

- Noise Zone I: Relatively low noise environment. Acceptable for housing, schools, medical facilities, and other noise-sensitive land uses.
- Noise Zone II: Moderately loud noise environment. Normally not recommended for housing, schools, medical facilities, and other noise-sensitive land uses.
- Noise Zone III: Highly loud noise environment. Not recommended for housing, schools, medical facilities, and other noise-sensitive land uses.

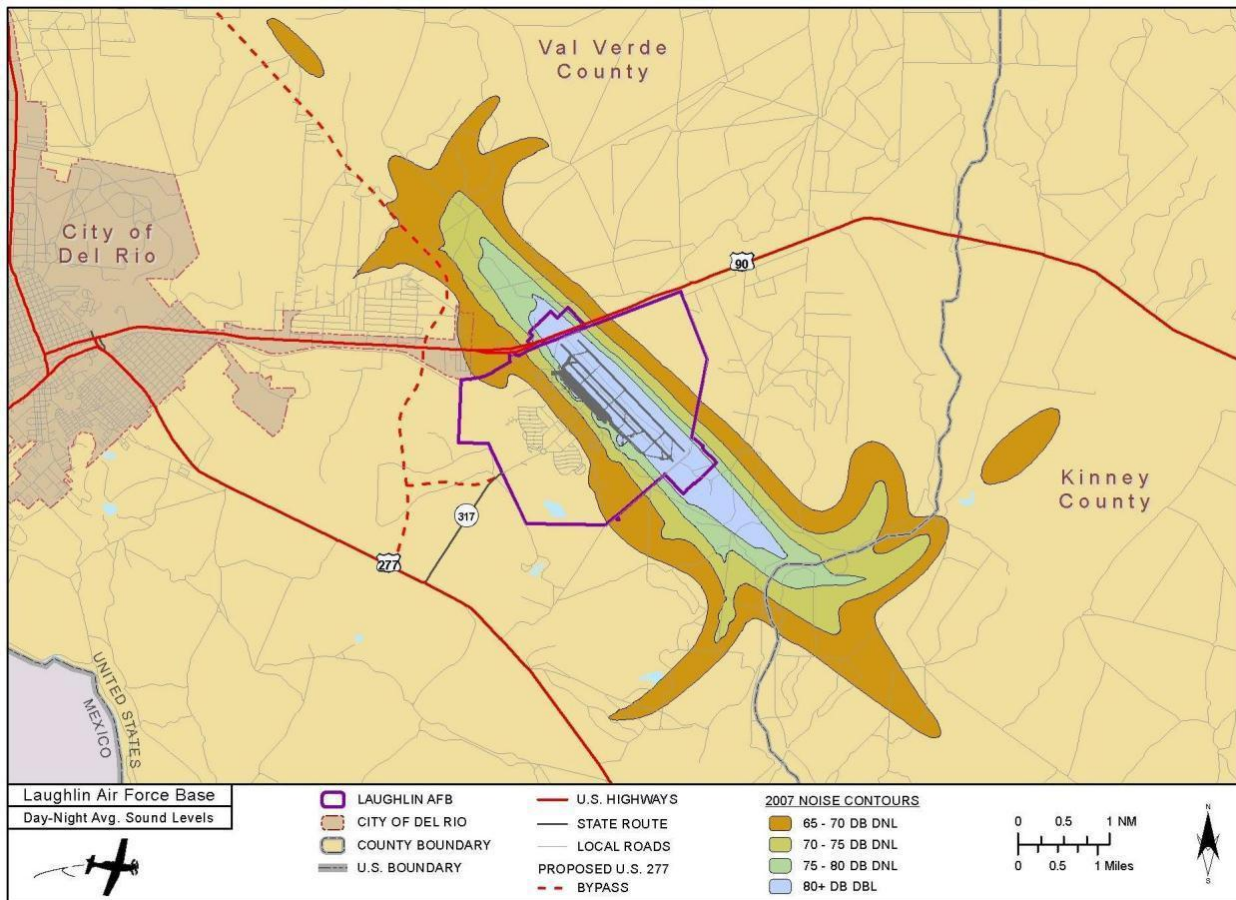
Table 3-5 outlines noise limits and zones for land use planning for aircraft operations. These noise levels are consistent with the EPA guidance.

Table 3-5. Noise limits and zones for land use planning for aircraft operations

Noise zone	General level of noise	Aircraft	Recommended uses
I	Low	< 65 dBA	Noise-sensitive land uses acceptable
II	Moderate	65–75 dBA	Noise-sensitive land uses normally not recommended
III	High	> 75 dBA	Noise-sensitive land uses not recommended

Source: Laughlin AFB 2008d

Both on- and off-base individuals could be subjected to multiple sources of noise during the day including military aircraft operations, traffic, normal operation of HVAC systems, military training activities, lawn maintenance, and construction activities. The runway at Laughlin AFB runs in a northwest and southeast direction. Aircraft noise is highest near the runway and generally follows the arrival and departure flight tracks of the jet craft (Figure 3-2).



Source: Laughlin AFB

Figure 3-2. Noise contours at Laughlin AFB

3.3 GEOLOGY AND SOILS

Laughlin AFB is at the junction of two major physiographic regions of Texas: the Edwards Plateau to the north and the Rio Grande Plain to the south. The Edwards Plateau is part of the Great Plains and the Rio Grande Plain is part of the Gulf Coastal Plains. The approximate divide for these two physiographic provinces is the Balcones Escarpment, part of an inactive geologic fault zone several miles wide. The base is near the edge of the Balcones Fault Zone, but no recent seismic activity has occurred in the area

(Laughlin AFB 2007). Locally, the approximate divide is U.S. Highway 90, running east to west directly north of Laughlin AFB. The Edwards Plateau region is locally characterized by high dry limestone ridges, scrub brush, and poor surface soils. South of Highway 90, the Rio Grande Plains region generally has gently rolling plains and somewhat deeper and richer soils. Laughlin AFB is predominantly in the Rio Grande Plains. The general terrain of Laughlin is a moderately rolling expanse of low hills and flats, sloping slightly to the southwest (Laughlin AFB 2010a).

Minerals with significant deposits in Val Verde County are oil, natural gas, and manganese. The oil in the area is asphaltic and is generally not economical to drill. Some small natural gas deposits are being tapped in the northwest part of the county. Manganese was mined near Shumla during World War I, but the quality of the ore was not sufficient to allow economical operation of the mines after the war ended. No active pits, quarries, mines, or oil or gas wells are known to exist at Laughlin AFB.

Soils at Laughlin AFB generally consist of sandy clay or caliche, a composite of clay, sand, and limestone gravel. Localized zones of hard indurated caliche caused by secondary cementation can cause difficulty when excavating (Laughlin AFB 2010a). The primary erosion problem is the maintenance of backfill around new structures. Proper gradient and planting can be used to help control erosion of backfill soil during the occasional intense rain event.

The predominant soil type on base is the Zapata-Vinegarroon (ZaC) complex (USDA 2012). The ZaC complex is characterized by very shallow and shallow, gently sloping soils on upland areas (USDA 1982). These soils formed in old outwash sediment over thick beds of caliche. As much as 20 percent of the surface is covered by limestone and caliche fragments. These soils are well drained. Surface runoff is medium. Permeability is moderate, and available water capacity is very low. The water erosion hazard is moderate. These soils are considered poorly suited to most urban uses. The cemented pan, thin surface layer, and corrosivity to uncoated steel are the main limitations (USDA 1982).

The above soil types are found at the proposed demolition and construction sites as indicated below:

- **ZaC Complex** – Building 380 (demolition); Buildings 9200 through 9220 (demolition); SOQ (proposed construction); Aerospace Physiology (proposed construction); and Airfield Improvement Area.
- **AcB** – Airfield Improvement Area
- **OmD** – Buildings 9200 through 9220 (demolition); Building 110 (demolition); Small Arms Facility (demolition); Small Arms Site (proposed construction); and Alternative Small Arms Site (proposed construction alternative).
- **CoB** – Building 1100 (demolition; eastern portion); Alternative Small Arms Site (proposed construction alternative; eastern portion); and Airfield Improvement Area (eastern corner).

Table 3-6. Characteristics of major soil types at Laughlin AFB

Soil type	Permeability	Erosion hazard	Limitations	Location(s)
ZaC – Zacata-Vinegarroon complex, 1% to 5% slopes	Well drained, moderate permeability	Moderate	Cemented pan, thin surface layer, corrosivity to uncoated steel	Main developed portion of the base and the southeast portion of the airfield
AcB – Acuna silty clay, 0% to 3% slopes	Well drained, moderate permeability	Slight to moderate	Seepage, clayey texture, excess lime, shrinking and swelling, low strength under roads and streets, and corrosivity to uncoated steel	Airfield Improvement Area
OmD – Olmos very gravelly loam, 1% to 8% slopes	Well drained, permeability is moderate in upper part and slow in indurated caliche	Moderate	Cemented pan, small stones, thin surface layer, and corrosivity to uncoated steel	Southern, western, and southeastern portions of the base
CoB – Coahuila clay loam, 0% to 3% slopes	Well drained, moderate permeability	Slight to moderate	Excess lime, shrinking and swelling, low strength under roads and streets, corrosivity to uncoated steel, and seepage	Small areas throughout the base

Source: USDA 2012

3.4 WATER RESOURCES

Water resources include both surface and groundwater. These resources have the potential to be used by the public for agricultural, public, or private use. In Texas, the state owns all natural surface water and it is held in trust; this includes stormwater and floodwaters found within natural lakes, rivers and streams per the Texas Water Code, Subtitle B. Groundwater is treated differently than surface water in Texas. Groundwater ownership is determined by the Rule of Capture, which allows landowners the right to capture an unlimited amount of groundwater found in underlying aquifers on their property.

The quality of water resources is governed by federal statutes, including the Clean Water Act (CWA) 33 *United States Code* (U.S.C.); the Safe Drinking Water Act 43 U.S.C.; the Coastal Zone Management Act of 1972; and by the state statute of the Texas Water Code. Associated with these federal statutes is the delegation of authority to Texas to maintain water quality, specifically through the National Pollutant Discharge Elimination System (NPDES)/Texas Pollutant Discharge Elimination System (TPDES). Texas surface water quality standards are in Title 30 of the Texas Administrative Code, section 307. In the Texas Water Code, TCEQ is given the primary responsibility for implementing water quality management and enforcement.

3.4.1 Surface Water

Laughlin AFB is in the Rio Grande watershed, which flows into the Rio Grande River and then discharges into the Gulf of Mexico. The Rio Grande River is the fifth longest river in North America and among the 20th longest in the world. The Rio Grande Watershed drainage area is approximately 180,840 square miles and includes three states in the United States (Colorado, New Mexico, and Texas) and five states in Mexico (Chihuahua, Coahuila, Durango, Nuevo Leon, and Tamaulipa). The Rio Grande watershed is divided into two subwatersheds, upper and lower. Laughlin AFB is in the Lower Rio Grande watershed. In Texas, the Pecos River, Devils River, Alamito Creek, and San Felipe Creek are the Rio Grande's major tributaries (CRWR 2005).

Laughlin AFB has four drainage areas that receive on-base stormwater flows; the stormwater is discharged off-base by the way of four outfalls (001, 002, 003, and 004) or by sheet flow. Drainage area

1 one, at the center of the installation, has the highest percentage of impervious cover, 28 percent. The
2 stormwater is received by Sacatosa Creek, Zorro Creek, or an unnamed tributary; these waterbodies are
3 tributaries of the Rio Grande. Sacatosa Creek originates approximately 7.5 miles north-northeast of
4 Laughlin AFB, and flows along the eastern portion of Laughlin AFB. Sacatosa Creek receives water via
5 outfall 001 and 004, which includes discharges from stormwater that interact with aircraft maintenance
6 and refueling, vehicle maintenance, flight line, and wastewater treatment lagoons. The discharges
7 associated with the wastewater treatment lagoons are authorized under TPDES permit number
8 WQ0012651001.

9 Zorro Creek originates approximately 200 yards north-northwest of Laughlin AFB and flows along the
10 western portion of the base, receiving discharges from outfall 002. Zorro Creek receives runoff from the
11 hazardous materials storage area, Defense Reutilization and Marketing Service (DRMS) storage, and the
12 northwest portion of the installation. An unnamed tributary is at the south end of the installation and
13 receives discharges from outfall 003 via a dry pond. The dry pond receives stormwater from the family
14 housing area and golf course (Laughlin AFB 2011a).

15 Laughlin AFB has obtained coverage under the TPDES Multi-Sector General Permit TXR05000 from
16 TCEQ on the basis of its activities (Air Transportation Facilities, Hazardous Waste Storage Facilities, and
17 Land Transportation and Warehousing) that occur on Laughlin AFB. This permit (Number
18 TXR05M844), allows Laughlin AFB to discharge stormwater associated with industrial activities into
19 receiving waters as designated in the Texas Surface Water Quality Standards. The permit requires
20 monitoring specific pollutants at outfalls, using best management practices, and implementing
21 engineering controls to control runoff (USAF 2011).

22 Three 100-year floodplains are on the base (FEMA 2010). The floodplains present on Laughlin AFB are
23 associated with Sacatosa Creek, Zorro Creek, and an unnamed tributary. The floodplain connected with
24 Sacatosa Creek is on the eastern edge of Laughlin AFB adjacent to the airfield, and follows the creek.
25 The second floodplain is on the north west edge of Laughlin AFB, following Zorro Creek. The third
26 floodplain is at the southernmost edge of Laughlin AFB below the treatment lagoons, following the
27 unnamed tributary (FEMA 2010). The locations of the demolition and associated construction associated
28 with the Proposed Action or alternate location(s) are not within these floodplains. Figure 3-3 shows
29 floodplains present on Laughlin AFB.

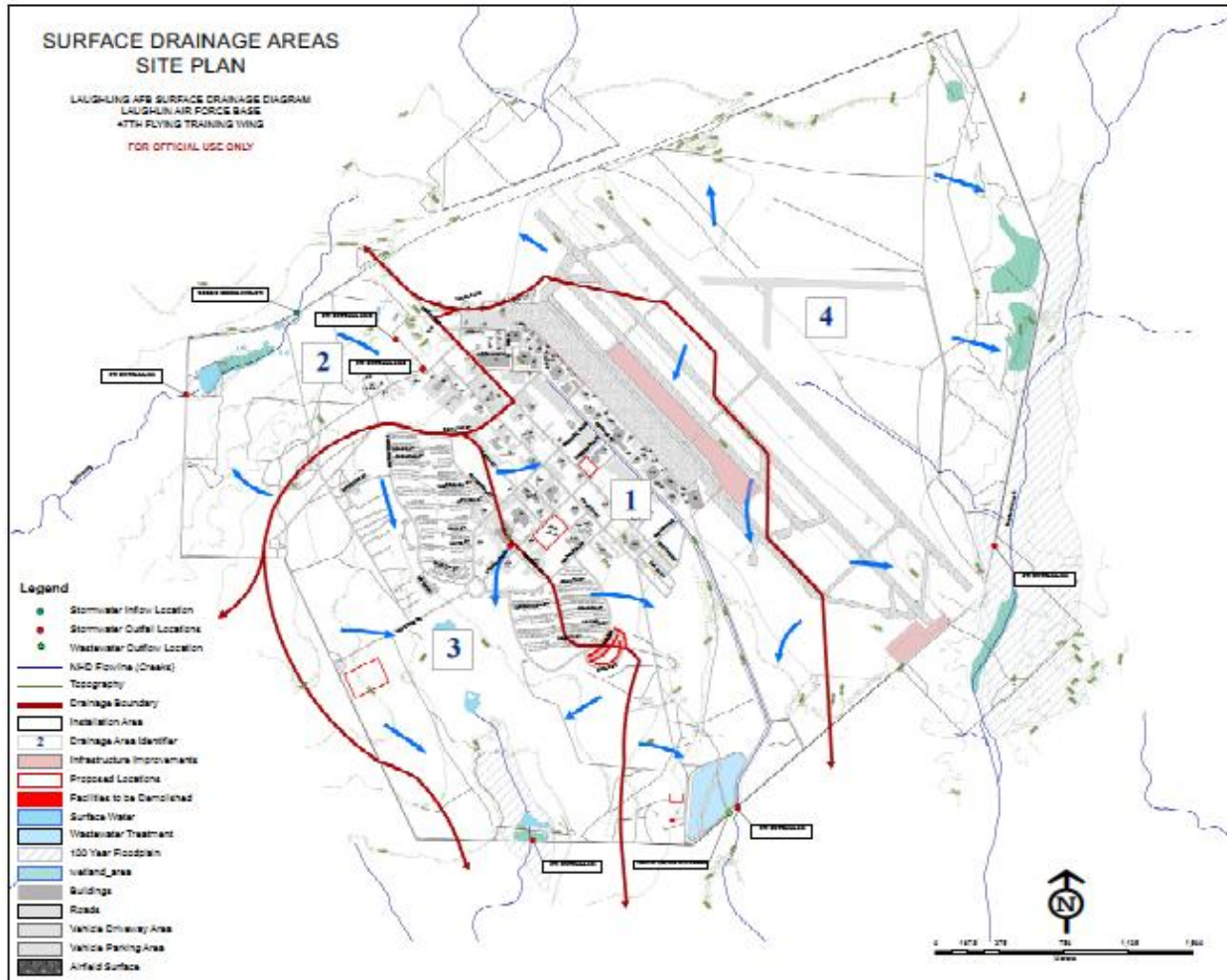


Figure 3-3. Surface drainage features on Laughlin AFB

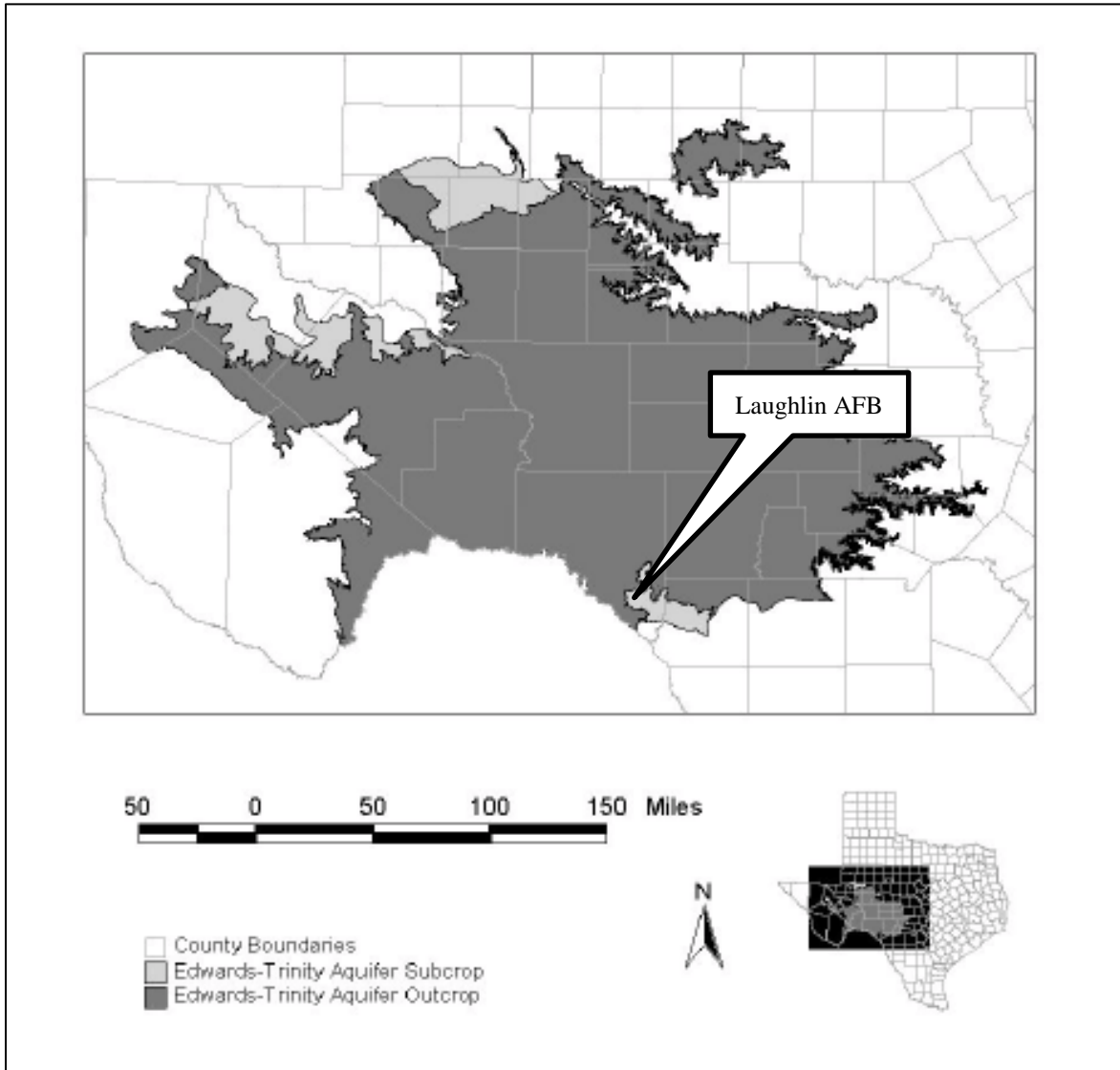
3.4.2 Groundwater

Groundwater under Laughlin AFB is in the Edwards-Trinity Aquifer System. The Edwards-Trinity Aquifer System, shown in Figure 3-4 occupies an area of approximately 35,500 square miles in west-central Texas and is found beneath all or parts of 38 counties. The system falls within four regional water planning groups and 24 groundwater-management districts; Laughlin AFB is in the Region J Water Planning Group but is not within a groundwater management district.

Water levels in the aquifer are influenced by recharge from precipitation over the outcrops, sinkholes, and stream interaction and have remained fairly consistent except for an area in the northern and western plateau where a general trend of declining water levels are occurring because of increased withdrawal for irrigation. The groundwater flows from the north to the south and southeast (TWDB 2001).

Over seventy-five percent of the total groundwater withdrawn from the system is used for irrigation purposes. Municipal water supplies are the second highest users followed by industrial, mining, livestock, and rural domestic uses. The City of Del Rio is one of the municipal water suppliers that draws water from this aquifer (TWDB 2001). Laughlin AFB purchases its potable water from the City of Del Rio; however, the pumps are maintained by Laughlin AFB. The City of Del Rio withdraws water from the aquifer from a feeder line to the San Felipe Springs, the water is withdrawn at a rate of 2,100 gallons

per minute (Laughlin AFB 2011d). San Felipe Springs are where the Edwards-Trinity Aquifer naturally reaches the surface under artesian pressure through a fault in the rock. The San Felipe Springs are the fourth largest springs in Texas and consist of 10 or more springs that extend over a mile along San Felipe Creek (USGS 1995). These springs are approximately 5 miles west northwest of Laughlin AFB (Laughlin AFB 2011d).



Source: TWDB 2001

Figure 3-4. Edwards-Trinity aquifer system

3.5 BIOLOGICAL RESOURCES

Biological resources consist of living, native, or naturalized plant and animal species and the habitats in which they occur. The natural resources at Laughlin AFB are managed under an Integrated Natural Resources Management Plan (INRMP) (USAF 2012). For the purposes of this EA, biological resources are divided into four categories: vegetation, wetlands, wildlife, and threatened and endangered species.

The U.S. Fish and Wildlife Service (USFWS) is responsible for the recovery of federally listed threatened and endangered species under the *Endangered Species Act of 1973*. The Texas Parks and Wildlife Department (TPWD) provides management for wildlife at the state level.

3.5.1 Vegetation

As part of Val Verde County, Laughlin AFB is in the western portion of the Semiarid Edwards Bajada ecoregion of Texas, which is noted for the presence of perennial streams originating from cool water aquifers beneath the Edwards Plateau, and flowing over chalky substrates. The Balcones Escarpment forms a distinct boundary of the Plateau on its eastern and southern borders and outlines what is known as the Texas Hill Country (TPWD 2005). In the Texas Hill Country, vegetation is typically characterized in terms of grasses, forbs, and browse, which can be used as indicators of ecosystem health. Many areas are dominated by a diversity of low plants, such as cedar or Ashe juniper (*Juniperus ashei*), Texas persimmon (*Diospyros texana*), and prickly pear (*Opuntia lindheimeri* var. *lindheimeri*) (Armstrong *et al.* 1991). The eastern and southern areas of the plateau consist of dense growth of shrubs and small trees, mostly oaks (*Quercus fusiformis*) and Juniper (*J. ashei*). In the northwestern margin of the plateau, the vegetation changes to a short tobosa grass (*Hilaria mutica*) savannah with mesquite (*Prosopis glandulosa*) (Johnston 1997).

Vegetation found on Laughlin AFB is consistent to that in the ecoregion described above. Vegetation communities are described in terms of a *series*, which identifies one or more dominant plant species. A biological survey of the base found four distinct vegetation areas: Cane Bluestem-False Rhodesgrass Series, Cenizo Series-Guajillo Series mosaic, the Sugarberry-Elm Series, and the Big Sacaton Series (TPWD 1995).

Flora and fauna surveys were performed in April 2011 on undeveloped portions of the base (Baer Engineering 2011). These surveys revealed an overall open canopy with several dominant tree species identified, including honey mesquite (*P. glandulosa*), hackberry (*Celtis laevigata*), Huisache (*Acacia farnesiana*), Retama (*Parkinsonia aculeate*), salt cedar (*Tamarix gallica*), and Texas persimmon. Shrubby vegetation was well spaced out with 33 total species identified. Dominant vegetation in the shrub layer includes hogplum (*Colubrina texensis*), purple sage (*Leucophyllum frutescens*), prickly pear, little leaf sumac (*Rhus microphylla*), and Lantana (*Lantana* spp.). Of these species, purple sage and prickly pear are the most dominant. Two rare plants are found on the installation. The longstalk heimia (*Nesaea longipes*) exists in the area south of the airfield and the eastern base (Laughlin AFB 2011g), and the Texas trumpet (*Acleisanthes crassifolia*) is found in a shrubland on a gravelly slope in the northwest quarter of the installation near the western perimeter fence (TNC 1999).

Improved grounds consisting of turf and landscaped areas occupy nearly 3,357 acres of Laughlin AFB. The predominant species encompassing the turf grasses are Bermuda, St. Augustine, King Ranch bluestem, and Lehmann lovegrass (*Eragrostis lehmanniana*). An urban forestry survey, which was completed in 2001, determined that 70 percent of the tree population throughout the improved grounds of the base consisted of Arizona ash (*Fraxinus velutina*), live oak (*Q. virginiana*), red oak (*Q. shumardii*), mesquite, crape myrtle (*Lagerstroemia indica*), cedar elm, and Afghan pine (*Pinus eldarica*). The 2001 survey concluded that active recruitment of young trees is occurring (Laughlin AFB 2011g).

3.5.2 Wetlands

Under section 404 of the CWA, wetlands are defined as areas that are, “inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Wetlands generally include swamps, marshes, bogs, and similar areas. The CWA sets the basic regulatory framework for regulating discharges of pollutants to U.S. waters, and section 404 establishes a federal

program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. Waters of the United States most commonly encompass navigable waters bound by the ordinary high water line, adjacent wetlands, and relatively permanent tributaries. Executive Order (EO) 11990, *Protection of Wetlands*, dated May 24, 1977, and amended by EO 12608 on September 9, 1987, directs federal agencies to minimize the destruction, loss, or degradation of wetlands and to enhance their natural and beneficial values.

A formal wetlands delineation has not been completed on the base. National Wetlands Inventory (NWI) maps and aerial photography were used to help identify and classify 13 potential wetland and surface water areas on Laughlin AFB in accordance with USFWS NWI classification system as described in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin *et al.* 1979). On the basis of the NWI classification system, the wetlands on the installation are primarily excavated or impounded palustrine areas with unconsolidated shores or bottoms, or intermittent streambeds, with temporary, semi-permanent, or intermittent flooding. Two riverine classified areas are adjacent to the west boundary of the airfield and along the northwest boundary. Previous studies have identified potential wetland areas generally within undeveloped areas along the eastern perimeter and far northwest corner of the base (Laughlin AFB 2007).

3.5.3 Wildlife

Wildlife at Laughlin AFB is consistent with that expected to occur in the scrub-shrub and grassland vegetative communities described above. Common species observed on the installation include desert cottontail (*Sylvilagus audubonii*), black-tailed jack rabbit (*Lepus californicus*), Mexican ground squirrel (*Spermophilus mexicanus*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), Chihuahuan raven (*Corvus cryptoleucus*), and cactus wren (*Campylorhynchus brunneicapillus*) (Tetra Tech 2011a; USAF 2007). Avian point counts conducted in 2011 revealed 56 species detected, totaling 533 individuals (Baer Engineering 2011). Four Audubon Watch List species were either detected in the surveys or observed on base, including scaled quail (*Callipepla squamata*), Bell's vireo (*Vireo bellii*), painted bunting (*Passerina ciris*), and Swainson's hawk (*B. swainsoni*) (Baer Engineering 2011). Popular wildlife game species at Laughlin AFB are white-tailed and desert mule deer (*Odocoileus hemionus crooki*), turkey (*Meleagris sp.*), javelina (*Pecari tajacu*), bobwhite quail (*Colinus virginianus*), scaled quail, white-winged dove (*Z. asiatica*), and mourning dove (Laughlin AFB 2011d). Suitable aquatic habitat on Laughlin AFB is lacking and, thus, natural fish populations and amphibians are rare (Laughlin AFB 2011g).

Three species of small mammals were identified during trapping efforts, including hispid cotton rat (*Sigmodon hispidus*), southern plains wood rat (*Neotoma micropus*), and white-footed mouse (*Peromyscus leucopus*) (Laughlin AFB 2011h). Spot-lighting surveys also revealed the following species: common gray fox (*Urocyon cinereoargenteus*), striped skunk (*Mephitis mephitis*), eastern cottontail (*S. floridanus*), Virginia opossum (*Didelphis virginiana*), northern raccoon (*Procyon lotor*), and white-tailed deer (*O. virginianus*) (Laughlin AFB 2011h). Other wildlife includes bobcat (*Lynx rufus*), coyote (*Canis latrans*), puma (mountain lion) (*Puma concolor*), red fox (*Vulpes vulpes*), ringtail (*Bassariscus astutus*), porcupine (suborder Hystricomorpha), armadillo (*Dasypus novemcinctus*), fox squirrel (*Sciurus niger*), beaver (*Castor canadensis*), badger (*Mustelidae family*), and several species of bats. Some of these species occur throughout the county; others, such as raccoon, opossum, and squirrel are found mainly around rivers and creeks (Laughlin AFB 2011d).

3.5.4 Threatened, Endangered, and Rare Species

According to the Annotated County Lists of Rare Species published by TPWD, 80 species are identified as rare species for Val Verde County (TPWD 2011). Those include 2 species of amphibians, 17 species of birds, 1 species of crustacean, 14 species of fish, 6 species of insects, 13 species of mammals, 4 species

of mollusks, 7 species of reptiles, and 16 species of plants. Two rare plant species that were identified on the TPWD list, longstalk heimia and Texas trumpet, occur on the installation. The longstalk heimia is known to occur in five locations on Laughlin AFB, which are the floodplain areas along Sacatosa Creek on the eastern edge of the base and in the floodplain of the unnamed southwest drainage along the southern perimeter road west of the sewage ponds (USAF 2011, TNC 1999). A small population of Texas trumpets occurs in a shrubland on a gravelly slope in the northwest quarter of the installation near the western perimeter fence (TNC 1999).

Val Verde County has three federally listed birds, one fish, one mollusk, and two flowering plant species (Table 3-7). Before 2011, biological surveys of Laughlin AFB did not find any of these federally listed species on the base (TPWD 1995; TNC 1999). A threatened and endangered species habitat assessment of Laughlin AFB was conducted in April 2011 to determine if any of these species are present on the base or if habitat is likely to occur on the base (Laughlin AFB 2011h). During the survey, one black-capped vireo was observed north of the wastewater treatment ponds at three separate locations (Laughlin AFB 2011h). After the survey was completed, a subsequent survey was conducted to specifically verify the resident status of the black-capped vireo. During the survey, the bird was not observed (visually or auditory) so it is assumed that the bird was a late migrant and not a resident (Laughlin AFB 2011d).

Table 3-7. Federally listed species in Val Verde County

Common name	Scientific name	Federal status ^a	State status ^a	Observed on Laughlin AFB	Potential to occur on Laughlin AFB
Birds					
Black-capped vireo	<i>Vireo atricapilla</i>	E	E	Y	Y
Mountain plover	<i>Charadrius montanus</i>	PT		N	N
Interior least tern	<i>Sterna antillarum athalassos</i>	E	E	N	N
Mollusks					
Texas hornshell (mussell)	<i>Popenaias opeii</i>	C	T	N	N
Fish					
Devils River minnow ^b	<i>Dionda diaboli</i>	T	T	N	N
Plants					
Texas snowbells	<i>Styrax texanus</i>	E	E	N	N
Tobusch fishhook cactus	<i>Ancistrocactus tobuschii</i>	E	E	N	N

Source: USFWS 2011; TPWD 2011

Notes:

- a C—Candidate Taxon, Ready for Proposal; PT—Proposed Threatened Taxon, Species proposed for official listing as threatened;
E—Endangered; T—Threatened;
- b Although unlikely to occur on Laughlin AFB, indirect effects on critical habitat for the Devils River minnow need to be studied in relation to reduction of water flow in the San Felipe Creek (USFWS 2008; Garrett et al. 1992).

State Listed and Rare Species in Val Verde County

Table 3-8 identifies the state-listed threatened or endangered and rare species found in Val Verde County and with the potential to occur on Laughlin AFB. Species known not to occur on Laughlin AFB because of the lack of preferred habitat have been omitted from the table. Three threatened species, one candidate for state listing, and one rare bird species have been identified as either observed on Laughlin AFB or have the potential to occur on the base. The peregrine falcon (*Falco peregrinus*), common black-hawk (*Buteogallus anthracinus*), and zone-tailed hawk (*B. albonotatus*), which are state-listed threatened

species, might migrate through the area, although they have not been confirmed as nesting residents of Laughlin AFB. Two rare species have been known to exist at Laughlin AFB, one of which is under consideration for special-status. These are the Mexican hooded oriole (*Icterus cucullatus cucullatus*) and the candidate for listing, Sprague's pipit (*Anthus spragueii*). No conclusive evidence of nesting Mexican hooded orioles was found on Laughlin AFB during the surveys conducted in 1997 (TNC 1999). Two unverified sightings of Sprague's pipit occurred on January 28, 2008, and limited information is available concerning the occurrence of this species on Laughlin AFB (USAF 2011). Three additional species previously identified as rare that were thought to exist at Laughlin AFB, included the loggerhead shrike (*Lanius ludovicianus*), the Audubon's oriole (*I. graduacauda audubonnii*), and the olive sparrow (*Arremonops rufivigatus*) (Tetra Tech 2011a). The loggerhead shrike and olive sparrow are no longer identified as rare species of Val Verde County (TPWD 2011). The Audubon's Oriole has not been observed at Laughlin AFB during two surveys conducted (TPWD 1995). During the April 2011 survey, only the olive sparrow was observed (Laughlin AFB 2011h).

Table 3-8. State listed and rare species in Val Verde County with potential to occur on Laughlin AFB

Common name	Scientific name	Federal status ^a	State status ^a	Observed on Laughlin AFB
Birds				
Peregrine falcon ^c	<i>Falco peregrinus</i>	DL	T	N
Common black-hawk ^c	<i>Buteogallus anthracinus</i>		T	N
Mexican hooded oriole	<i>Icterus cucullatus cucullatus</i>			Y
Sprague's pipit	<i>Anthus spragueii</i>		C	Y
Zone-tailed hawk ^c	<i>Buteo albonotatus</i>		T	N
Fish				
Proserpine shiner ^b	<i>Cyprinella proserpina</i>		T	N
Rio Grande darter ^b	<i>Etheostoma grahami</i>		T	N
San Felipe gambusia ^b	<i>Gambusia clarkhubbsi</i>		T	N
Reptiles				
Reticulate collared lizard ^c	<i>Crotaphytus reticulatus</i>		T	N
Texas horned lizard	<i>Phrynosoma cornutum</i>		T	Y
Trans-Pecos black-headed snake ^c	<i>Tantilla cucullata</i>		T	N
Plants				
Longstalk heimia	<i>Nesaea longipes</i>			Y
Texas trumpets	<i>Acleisanthes crassifolia</i>			Y

Source: USFWS 2011, TPWD 2011

Notes:

- a C—Candidate Taxon, Ready for Proposal; DL- delisted; E—Endangered; T—Threatened;
- b Although unlikely to occur on Laughlin AFB, indirect effects on habitat need to be studied in relation to reduction of water flow in the San Felipe Creek.
- c Surveys need to be conducted to determine if species use or reside on the base.

The Texas horned lizard (*Phrynosoma cornutum*) is a state threatened species that is not being considered for federal listing. Texas horned lizard populations were documented on base during the May 1993 survey but not during the April 2011 survey (TPWD 1995; Laughlin AFB 2011h). A prominent population was observed in the northeastern portion of the base in the Chihuahuan desert scrub (TNC 1999). Limited information is available concerning the occurrence of the reticulate collared lizard (*Crotaphytus reticulatus*) and the Trans-Pecos black-headed snake (*Tantilla cucullata*). Two other state-

listed threatened reptiles, the Indigo snake (*Drymarchon corais*) and the Texas tortoise (*Gopherus berlandieri*) have been identified as occurring in Val Verde County (Laughlin AFB 2011d).

3.6 CULTURAL RESOURCES

Laughlin AFB is responsible for identifying, evaluating, and protecting important cultural resources on the installation in compliance with the National Historic Preservation Act (NHPA) and other federal laws, regulations, and standards. Managing cultural resources on the installation is guided by an Integrated Cultural Resources Management Plan (ICRMP), which is reviewed annually and updated every 5 years. The most recent ICRMP was prepared as a draft in 2011 (Laughlin AFB 2011e).

Laughlin AFB has maintained a Cultural Resources Management (CRM) Program since the early 1990s. Program personnel have developed and implemented various management plans and agreement documents to guide overall cultural resources identification, treatment, and preservation strategies for compliance with NHPA and all federal, state, DoD, and Air Force laws, regulations, policies, and provisions regarding cultural resources management. The entire base has been inventoried for archaeological resources, architectural and historical resources, and Native American resources (Traditional Cultural Properties and Sacred Sites).

The ROI for the proposed undertakings includes the footprints of the areas slated for ground-disturbing activities and any National Register of Historic Places (NRHP)-eligible architectural/historic resources in the footprints or the viewsheds.

3.6.1 Archaeological

Laughlin AFB has undergone several inventory efforts for archaeological resources, and the ICRMP notes that the SHPO has found no deficiencies. Thirteen archeological sites have been recorded on Laughlin AFB to date. Of those, four are determined to be eligible for inclusion in the NRHP (41VV 1654, 41VV 1688, 41VV1689, and 41VV1690), with nine determined to be not eligible. Late Paleoindian, Archaic, Late Prehistoric, and Early Mid Twentieth Century components have been recorded.

The ICRMP indicates that the ROIs have been subjected to archaeological survey, and no unevaluated, NRHP-eligible, or NRHP-listed sites are present (Laughlin AFB 2011e).

3.6.2 Traditional

Laughlin AFB has conducted the research and consultation necessary to determine if sacred sites or Traditional Cultural Properties are present. The ICRMP reports:

There are no known Native American sacred sites, TCPs, or cultural landscapes identified on Laughlin AFB property. Most of the landforms are so heavily modified that there is little chance for cultural landscapes or Native American sacred sites, or for the presence of any other non-archeological or standing structure cultural resource.

3.6.3 Built Environment

Architectural/historical resource inventory has been completed for Laughlin AFB. No resources have been recommended eligible for the NRHP.

Building 380 (Aerospace Physiology Facility) was recommended as not eligible in a 2002 study, with the caveat that the building (constructed in 1969) be re-evaluated if it attained an age of 50 years (Laughlin

AFB 2011e). Buildings 9200–9220 and Building 1100 were recommended as not eligible. No eligible resources, districts, or landscapes are in the viewshed of any of the proposed actions.

3.7 SOCIOECONOMICS

This section describes the economy and the sociological environment of the ROI surrounding Laughlin AFB. The ROI for the social and economic environment is defined as Val Verde County in southwest Texas on the U.S.-Mexico border. The cantonment area of Laughlin AFB, where the Proposed Action would occur, is in southern Val Verde County. The City of Del Rio is about 7 miles west of the base and is also in Val Verde County. Socioeconomic data for the City of Del Rio, Texas, and the United States are presented for comparative purposes.

3.7.1 Employment

Table 3-9 lists the civilian labor force information for the ROI, with state and national data for comparative purposes. The City of Del Rio and the ROI labor force increased 23 percent between 2000 and 2010, higher than the Texas labor force growth of 17 percent and the U.S. labor force growth of 8 percent. The City of Del Rio and the ROI 2010 annual unemployment rate was 9 percent, higher than the Texas unemployment rate of 8 percent but lower than the national unemployment rate of 10 percent. As of January 2012 (the most recent data available), preliminary unemployment data for this month is a 9 percent unemployment rate for the city and the ROI, higher than the Texas unemployment rate of 8 percent but the same as the national unemployment rate (BLS 2012).

Table 3-9. Labor force and unemployment

Jurisdiction	2000 civilian labor force	2010 civilian labor force	Change in labor force, 2000–2010	2010 annual unemployment rate
The City of Del Rio	13,591	16,720	23%	9%
ROI (Val Verde County)	17,311	21,248	23%	9%
Texas	10,347,847	12,136,384	17%	8%
United States	142,583,000	153,889,000	8%	10%

Source: BLS 2012

As of 2009, the primary ROI industries from an employment standpoint were government and government enterprises (which include federal civilian, military, and state and local government); health care and social assistance; retail trade; and manufacturing. Together those four industry sectors accounted for about 60 percent of regional employment. Between 2001 and 2009, the largest employment increases occurred in the manufacturing, government, accommodation and food services, and retail trade sectors. Employment declines occurred in the information services sectors. Government and government enterprises (which include Laughlin AFB) was the largest regional industry in 2009, employing about 6,600 people and accounting for 28 percent of total ROI employment (BEA 2012).

Laughlin AFB provided significant financial effect on the local economy by directly employing about 3,230 people and indirectly generating employment for about 1,740 people. The base's payroll totaled more than \$119.5 million in 2011. Laughlin AFB's total Fiscal Year 2011 economic impact was valued at more than \$234 million (Laughlin AFB 2012).

3.7.2 Income

ROI income levels are lower than the Texas and national averages (Table 3-10). The ROI per capita personal income (PCPI) was \$16,615. This PCPI was 67 percent of the Texas PCPI of \$24,870 and

61 percent of the national PCPI of \$27,334. The ROI median household income of \$36,993 was 75 percent of the Texas median household income of \$49,646 and 71 percent of the national median household income of \$51,914. The City of Del Rio income levels are lower than that of the ROI, Texas, and the United States (Table 3-10).

Table 3-10. Income, 2006-2010 5-year average

Jurisdiction	PCPI	Median household income
The City of Del Rio	\$15,677	\$34,111
ROI (Val Verde County)	\$16,615	\$36,993
Texas	\$24,870	\$49,646
United States	\$27,334	\$51,914

Source: US Census Bureau 2012

3.7.3 Population

Population trends are presented in Table 3-11. The City of Del Rio's population increased by 5 percent (about 1,700 people) between 2000 and 2010. The ROI's population increased by about 4,000 people, or 9 percent, between 2000 and 2010. During the same period, Texas' population grew by 21 percent, and the U.S. population grew by 10 percent. The 2030 population projections predict continued high population growth for the City of Del Rio, the ROI, and the state, with a projected 23 percent increase for the City of Del Rio and for the ROI between 2010 and 2030 and a 32 percent increase for Texas. The U.S. population is projected to increase by 18 percent between 2010 and 2030. The City of Del Rio's growth is projected to continue because of its location, with increased traffic on U.S. Highway 90, expected growth of Laughlin AFB, and proximity to Lake Amistad and the border with Mexico (TRC 2011). Laughlin AFB's 2010 population was 1,569, a decrease of 29 percent (about 655 persons) from the 2000 population of 2,225.

Table 3-11. Population

Jurisdiction	2000 population ^a	2010 population ^b	Change in population, 2000–2010	2030 projected population ^{c,d}	Projected change in population, 2010–2030
Laughlin AFB	2,225	1,569	–29%	N/A	N/A
The City of Del Rio	33,867	35,591	5%	43,841 ^e	23%
ROI (Val Verde County)	44,856	48,879	9%	60,088	23%
Texas	20,851,820	25,145,561	21%	33,317,744	32%
United States	281,421,906	308,745,538	10%	363,584,435	18%

Notes:

- N/A not available
- a Source : U.S. Census Bureau 2000.
- b Source : U.S. Census Bureau 2011a.
- c Source for Val Verde County 2030 projected population: Texas Comptroller 2001.
- d Source for Texas and United States 2030 projected populations: US Census Bureau 2005.
- e Source: TRC 2011.

3.7.4 Housing

Laughlin AFB has on-base housing for families and unaccompanied military personnel. ROI housing data for 2012 are presented in Table 3-12. ROI housing costs (median monthly mortgage and median gross rent) are lower than the state and national levels. The ROI's homeowner vacancy rate of 1.8 percent

is lower than the state and national homeowner vacancy rates of 2.1 percent and 2.4 percent, respectively. The ROI rental vacancy rate of 7.4 percent also is lower than the state vacancy rate of 10.8 percent and the national rental vacancy rate of 9.2 percent. The homeowner vacancy rate is the proportion of the homeowner inventory that is vacant *for sale*, and the rental vacancy rate is the proportion of the rental inventory that is vacant *for rent*. The ROI had about 190 housing units vacant for sale and about 440 housing units vacant for rent. ROI median housing value was \$81,100, lower than the state median housing value of \$123,500 and the national value of \$188,400.

The City of Del Rio's median housing value was \$82,600, very similar to that of the ROI but lower than the state and national median housing values. The city's housing costs (mortgage and rent) were lower than that of the ROI, Texas, and the United States. Homeowner and rental vacancy rates in the city are lower than that of the ROI, state, and the nation (Table 3-12).

Table 3-12. 2010 Housing

Jurisdiction	Total housing units ^a	Number housing units vacant for sale ^a	Number housing units vacant for rent ^a	Homeowner vacancy rate ^a	Rental vacancy rate ^a	Median monthly mortgage ^b	Median gross rent ^b
The City of Del Rio	12,958	122	311	1.6%	6.6%	\$1,050	\$563
ROI (Val Verde County)	18,651	187	438	1.8%	7.4%	\$1,066	\$584
Texas	9,977,436	121,430	394,310	2.1%	10.8%	\$1,409	\$786
United States	103,704,730	1,896,796	4,137,567	2.4%	9.2%	\$1,524	\$841

Notes:

a U.S. Census Bureau 2011a

b Median monthly mortgage and median gross rent is the 2006-2010 5-year average. Source: US Census Bureau 2012

3.7.5 Education

The public school system that accommodates Laughlin AFB's children is administered by the San Felipe-Del Rio Consolidated Independent School District. Private and parochial schools are within commuting distance to meet family needs (Laughlin AFB 2011d).

3.7.6 Healthcare

Laughlin AFB has a medical clinic, and the Val Verde Regional Medical Center is about 7 miles west of the base, in the City of Del Rio. This hospital is a 93-bed, level IV trauma center with a staff of about 400 healthcare professionals. Other services include a healthcare clinic, imaging center, intensive care unit, surgery, respiratory care, inpatient dialysis, rehabilitation services, cardiac catheterization lab, and nursery (VVRMC 2011).

3.7.7 Emergency Services

The 47th Security Forces Squadron provides installation security, police services, and resource protection on Laughlin AFB (Laughlin AFB 2011d). Off-base, the Val Verde County Sheriff's Office is the chief law enforcement agency in the ROI. The Sheriff's Office patrols the county, investigates crime, and provides other support services such as criminal records, crime victim assistance, civil service, warrant execution, and maintaining order in the district and county courts (Val Verde County 2012). The

Sheriff's Office is headquartered in the City of Del Rio, which is the county seat. Val Verde County employs about 40 law enforcement officers (FBI 2012).

The City of Del Rio has a municipal police department that employs about 90 personnel, about 65 law enforcement officers and about 25 civilians (FBI 2012). The Texas Highway Patrol Division is responsible for general police traffic supervision, traffic, and criminal law enforcement on the rural highways of Texas (Texas Department of Public Safety 2012).

The Laughlin AFB Fire Department has one fire station on the main base and is responsible for on-base fire and emergency services. Off-base, the Val Verde County Fire and Rescue Department has five fire stations and provides fire suppression (structure, vehicle, and wildland), public education, search and rescue, and assists Emergency Medical Service (USFA 2012; Val Verde County 2012). The City of Del Rio Fire and Rescue Department has four fire stations (USFA 2012). The closest off-base civilian fire department is about 6 miles west of Laughlin AFB.

3.8 PROTECTION OF CHILDREN AND ENVIRONMENTAL JUSTICE

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*, was issued by President Clinton on February 11, 1994. The EO requires that federal agencies take into consideration disproportionately high and adverse environmental effects of governmental decisions, policies, projects, and programs on minority and low-income populations.

Environmental justice data is presented for the ROI (Val Verde County). Data for the City of Del Rio, Texas, and the United States are presented for comparative purposes.

3.8.1 Protection of Children

On April 21, 1997, President Clinton issued EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. This EO seeks to protect children from disproportionately incurring environmental health risks or safety risks. The EO recognizes that a growing body of scientific knowledge demonstrates that children might suffer disproportionately from environmental health risks and safety risks. These risks arise because children's bodily systems are not fully developed; children eat, drink, and breathe more in proportion to their body weight; because their size and weight can diminish protection from standard safety features; and because their behavior patterns can make them more susceptible to accidents.

Laughlin AFB proposes to fully comply with EO 13045 by incorporating these concerns in decision-making processes supporting Laughlin AFB policies, programs, projects, and activities. In this regard, Laughlin AFB ensures that it would identify, disclose, and respond to potential adverse social and environmental effects on children in the area affected by a proposed action.

Children are present at Laughlin AFB as residents and visitors (e.g., residing in privatized family housing or lodging, using recreational facilities, attending events). Precaution is taken for child safety through a number of means, including using fencing, limiting access to certain areas, and requiring adult supervision. The proposed project sites evaluated in this EA (with the exception of the small-arms range) are near or adjacent to Laughlin AFB residential areas.

3.8.2 Environmental Justice

Minority population data are presented in Table 3-13. As of 2010, 83 percent of the ROI population was of a minority race or ethnicity. The ROI had a higher percentage of minority populations compared to Texas and the United States, which had populations comprised of 55 percent and 36 percent minorities,

respectively. The City of Del Rio minority population of 86 percent was also higher than that of the ROI, the state, and the nation. The majority of the minority population in the ROI and the City of Del Rio is of Hispanic or Latino origin, reflecting the proximity of these jurisdictions to Mexico (U.S. Census Bureau 2011a).

Poverty data is presented in Table 3-13. Twenty-four percent of ROI residents were classified as living in poverty, higher than the Texas poverty rate of 17 percent and the national poverty rate of 14 percent. The City of Del Rio's poverty rate of 26 percent also was higher than that of the ROI, Texas, and the nation (U.S. Census Bureau 2012).

Table 3-13. Minority and low income populations

Jurisdiction	Minority population, 2010 ^a	All persons below poverty level, 2006-2010 5-year Average ^b
The City of Del Rio	86%	26%
ROI (Val Verde County)	83%	24%
Texas	55%	17%
United States	36%	14%

Notes:

- a US Census Bureau 2011a
- b US Census Bureau 2012

3.9 TRANSPORTATION

This section provides a description of the existing transportation resources on- and off-base, including an overview of the regional and local traffic, airports, public transit, and rail resources. Transportation in and around Laughlin AFB is achieved mainly via the local street networks. The transportation system serves base traffic consisting of everyday work, living, and recreations trips.

On-Base Roadways and Gate Traffic

Access to the installation is provided by two established Entry Control Facilities (ECF), the North and West Gates. The North Gate is used as the primary entrance to the installation. It is on the north side of the main cantonment area on Liberty Drive. The gate is open 24 hours a day and is the main gateway for visitors, base personnel, and fuel trucks from U.S. 90, the major highway link to the City of Del Rio and San Antonio. The North Gate experiences congestion during the morning and evening peak hours when personnel are entering/leaving the base. To compound this problem, vehicles must traverse the Union Pacific Railroad line, which moves 22 high-speed trains by the base daily (Laughlin, 2010a). Texas constructed a dedicated 1,000-foot turn lane from U.S. 90 into the North Gate to help move inbound vehicles off the highway. However, congestion continues to be a problem because of limited queuing space and the gate's proximity to the railroad tracks. The location of the tracks also presents safety concerns because trains could block the primary access point to the installation, thus limiting the access or egress by emergency response vehicles (Laughlin AFB 2011d).

The primary road system brings vehicles onto the base and moves them to operations, industrial, administration, community, and housing land uses. Barnes Street, Liberty Drive, and Fourth Street are the primary north-south streets. Laughlin Drive and Mitchell Boulevard are the primary east-west streets. A secondary road system further routes vehicles to places of employment, recreation, commercial, unaccompanied residences, and Privatized Housing uses (Laughlin AFB 2011d).

The road system on Laughlin AFB is adequate, and most base facilities can be reached within 15 minutes from either gate. Traffic conflicts periodically occur along Liberty Drive at Alabama Avenue, Arizona Avenue, Kansas Avenue, and Arkansas Avenue. These streets are all closely spaced and intersect Liberty Drive at less than 90 degree angles. The convergence of Colorado Avenue, Barnes Street, and California Avenue at one point creates a poorly designed intersection. Although not always as close to work sites as some personnel would prefer, ample parking exists throughout the base. On-street parking is being eliminated as part of a base program, and most facilities have off-street parking lots. (Laughlin AFB 2010a)

The West Gate, a secondary entrance to the installation, is open only during peak hours to relieve congestion at the North Gate. This gate provides direct access to the privatized housing areas and the golf course. Approximately 15 percent of the off-base employees use this gate during peak hours. School buses also use the West Gate to pick up and drop off children (Laughlin AFB 2011d).

Off-Base Roadways

Laughlin AFB is 6 miles east of the City of Del Rio, Texas, on U.S. 90 in the southeast corner of Val Verde County. The region abuts the Rio Grande River, the international boundary between Mexico and the United States. The region is approximately 150 miles west of San Antonio and 450 miles southeast of El Paso.

The major transportation corridors generally follow the terrain with U.S. 90 extending east-west anchoring the north side of the base, which travels along the southern end of the Edwards Plateau and Hill Country. U.S. Highway 277 extends northwest southeast paralleling the Rio Grande to the west of the base. U.S. Highway 277 runs east to west approximately 2 miles south of the base, and State Route 317 extends from U.S. 277 approaching the west gate. In addition, the Del Rio Bypass (Route 79) is now open extending from U.S. 277 South near the base, crossing U.S. 90, and extending around Del Rio to both U.S. 277/377 North and U.S. 90 North. Outside the city limits, secondary two-lane roads and numerous unimproved roads provide access to ranches and other large tracts of land. Annual average daily traffic counts (AADT) for off-base roads are listed in Table 3-14.

Table 3-14. AADT for gate accessible off-base roadways

Roadway	AADT
U.S. Highway 90 East Approaching Main Gate	4,000
U.S. Highway 90 West Approaching Main Gate	9,800
U.S. Highway 277 Approaching State Route 317	2,900
State Route 317 Approaching West Gate	700

Source: TXDOT 2010

Air, Rail, and Public Transportation

The City of Del Rio International Airport is the closest airport, approximately 7 miles west of Laughlin AFB. The airport provides commercial air service to Houston on one carrier. Freight and passenger rail service are provided by Union Pacific and Amtrak, respectively, which connects the region with the western, midwestern and southeastern regions of the United States (Laughlin AFB 2008d).

No public transportation is provided by Val Verde County. An international bridge over the Rio Grande provides pedestrian and vehicular access to Ciudad Acuña, an adjacent border city in Coahuila, Mexico.

3.10 UTILITIES AND INFRASTRUCTURE

Infrastructure typically refers to the systems and physical structures that enable a population in a specified area to function. Components of the infrastructure at Laughlin AFB include transportation and circulation (i.e., movement of vehicles), and utilities (potable water, electricity, natural gas, solid waste handling and wastewater). Existing utilities in the project area include potable water, natural gas, wastewater treatment services, solid waste services, and electricity.

3.10.1 Potable Water

Potable (drinking) water for Laughlin AFB is purchased from the City of Del Rio. Its water supply comes from the San Felipe Springs, which produces 90 million gallons of water per day. That is more than adequate to serve the region. Laughlin AFB has a 20-year contract with the city to provide five million gallons of water per day to the base. The base, on average, uses one million gallons per day. Although base water usage did not exceed 2.5 million gallons per day in 2009 or 2010, water usage can increase to four million gallons per day during times of heavy irrigation. Two Air Force booster pumps are located at the San Felipe Springs to supplement the city's water pressure as necessary (Laughlin AFB 2010a).

As the sole source for the base, water is pumped from the City of Del Rio Water Treatment Plant to the base's pumping facility through a 16-inch, 6-mile long transit pipe. This pipe was constructed in 1993 and is in excellent condition. Water is stored in a one million gallon aboveground tank, Building 2028, and pumped through Building 2027 to two elevated tanks. The two elevated tanks hold 100,000 gallons and 300,000 gallons, respectively. The improved areas of the base are watered April through September. Irrigation systems are installed at major facilities such as those adjacent to Liberty Drive, the athletic fields, and the golf course (Laughlin AFB 2010a).

3.10.2 Natural Gas Supply

Laughlin AFB purchases natural gas from the West Texas Gas Company, which is conveyed to Laughlin AFB via a 6-inch, high-pressure steel pipeline. The natural gas supply enters the base at the southwest boundary and is odorized in Building 497 before distribution. The main lines are 2- and 3-inch polyethylene, and the feeder pipes are three-quarter- and 1-inch polyethylene. Gas pressure is maintained at 19 pounds per square inch (psi) in the winter and 16 psi in the summer. The majority of base facilities use natural gas for heating and hot water. Gas is metered and controlled for major areas (Laughlin AFB 2010a).

3.10.3 Electrical Supply

Laughlin AFB purchases electrical power from Champion Electric. The power is transmitted to locations on the base via lines owned by Rio Grande Electric Coop. The base has a looped distribution system with a primary voltage of 7,200/12,480 volts. The majority of the cantonment area is serviced by overhead lines accounting for more than 50 percent of the base's electrical distribution system. The privatized housing area and the airfield both have underground distribution systems (Laughlin AFB 2011a).

3.10.4 Wastewater

Wastewater is collected and treated on Laughlin AFB via a facultative lagoon system. The lagoon system uses natural bacteria to biodegrade the wastes until the water reaches the discharge limits defined in the installation's TPDES permit (TPDES Permit Number WQ0012651-001). The water is then discharged into an unnamed tributary of Sacatosa Creek (Laughlin AFB 2010a).

3.11 HAZARDOUS MATERIALS AND WASTE MANAGEMENT

3.11.1 Hazardous Materials

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); the OSHA; the Emergency Planning and Community Right-to-Know Act (EPCRA), and AFI 32-7086, *Hazardous Materials Management*, identify and define hazardous materials. Generally, hazardous materials are any substance or chemical that is a physical or health hazard that can cause harm to people, plants, or animals when released into the environment. Hazardous materials are used throughout Laughlin AFB in work centers in day-to-day operations. Operations at Laughlin AFB require the use and storage of various types of hazardous materials. Some common hazardous materials found in work centers and construction sites are flammable and combustible liquids, petroleum, oils, and lubricants, solvents, paints, pesticides, and hydraulic fluids. A list of hazardous chemicals, including Materials Safety Data Sheets used on-base is located in Building 75 (Laughlin AFB 2010a). Laughlin AFB engages in active program to identify and purchase less hazardous alternatives as part of the Environmental Management System (EMS), outlined in AFI 32-7001, *Environmental Management*.

Operations at Laughlin AFB and associated properties require the use of hazardous materials by military personnel and on-base contractors in varying quantities throughout the base. The *Laughlin AFB Spill Prevention Control and Countermeasures Plan* contains the location of hazardous materials, procedures and equipment at Laughlin AFB used to prevent and clean up a release, and actions to be taken if a release were to occur (Laughlin AFB 2011a).

A 1993 base-wide survey and a 2001 building-specific survey were conducted for Laughlin AFB, which indicated that ACM was present in 95 percent of on-base buildings. ACM might be present in pipe insulation, cement pipe, floor tile, floor tile adhesive, roof patching sealant, wallboard in mechanical closets, wall and ceiling texture, and wallboard panels for facilities that were built before 1989, which includes all the facilities discussed in this EA. An *Asbestos Management Plan* is in effect at Laughlin AFB, and qualified contractors are hired to perform abatement and removal when applicable (USAF 2008a). The plan details procedures for notification, record keeping, protection, and abatement associated with ACM. The *Asbestos Management Plan* and *Asbestos Operations and Maintenance Plan* ensure that Laughlin AFB is in compliance with all ACM-related federal, state, and local regulations (USAF 2010). On the basis of the 1993 and 2011 surveys, sheetrock was tested as positive for ACM in buildings 9202, 9205, 9206, 9210, and 9214. ACM is present in water fitting insulation and mechanical equipment in Building 380 (Laughlin AFB 2011b).

A base-wide LBP survey has not been conducted; however, surveys have been conducted in various facilities. Results from surveys conducted after 1995 are in a database; all LBP information before 1995 has been lost or destroyed. Due to the lack of a base-wide survey, it must be assumed that all facilities constructed before 1980 could contain LBP. Buildings 9200–9220 have been surveyed, LBP is present in the buildings at various locations including door frames, sheetrock, shelving units, and trim. LBP can be found on windowsills, baseboards, doors, exterior trim work, front and back porches, molding, and baseboards. Laughlin AFB also has a *LBP Management Plan*, which establishes responsibilities, procedures for assessing risk, hazard management and risk reduction, medical screening, recordkeeping, and waste disposal requirements, and provides for capture or removal of LBP scrapings or dust. Historic painting activities did not include capture and proper disposal of paint scrapings or dust; therefore, it is possible that the soil in areas where LBP was used could exhibit elevated concentrations of lead (Laughlin AFB 2010a).

Pesticide application is routinely performed and managed by the Base Operating Support contractor. The central bulk storage facility for pesticides is at Building 129 (Laughlin AFB 2010a). Commercially available pesticides and herbicides are applied as needed throughout Laughlin AFB. Application and use

of these and all pesticides and herbicides are done in accordance with the *Integrated Pest Management Plan* (USAF 2012b). Historic pesticide applications have occurred throughout Laughlin AFB; these pesticides included diazinon, allethrin, chlordane, and pyrethrin-based products. These products were used within appropriate guidelines for application at the time that they were used. Before developing the installation for military use, the land was cultivated for agricultural purposes; however, the installation was constructed before the widespread use of pesticides and herbicides in agriculture (Laughlin AFB 2010a).

3.11.2 Hazardous Waste

Hazardous wastes are solid wastes or combinations of solid wastes that are regulated by RCRA. Due to their quantity, concentration, physical, chemical, or infectious characteristics, these materials could (a) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed (RCRA 1976). A waste is classified as hazardous because it is specifically listed or because of its toxicity, reactivity, ignitability, or corrosivity. Hazardous waste regulations are implemented at Laughlin AFB through hazardous waste handling procedures outlined in AFI 32-7042, *Waste Management*, and the *Laughlin AFB Hazardous Waste Management Plan* (Laughlin AFB 2008c). The plan details hazardous waste packaging, turn-in, transportation, storage, recordkeeping, and emergency procedures.

Laughlin AFB is classified as a large quantity generator of hazardous wastes. A large quantity generator means that the installation generates more than 1,000 kilograms (2,200 pounds) of hazardous wastes monthly. There is no upper limit on the amount of waste that can be generated; however, waste that is generated and not treated on-site must be transported to an off-site treatment, storage, and disposal facility (TSDF) that is authorized to handle hazardous waste or another type of designated facility. Typical hazardous wastes generated at Laughlin AFB are contaminated rags, solvents, waste fuel, and occasionally used oil. Hazardous wastes are initially collected at satellite accumulation points and are then transferred to the Laughlin AFB permitted 90-day storage area at Building 20300, where they are temporarily stored until they can be transported off-base. Wastes such as fluorescent lamps, batteries, and mercury-containing devices are classified as hazardous waste but are managed as universal wastes. Universal wastes are hazardous but are subject to less strict standards because they are destined to be recycled.

3.11.3 Solid Waste

Municipal solid waste management and compliance at Air Force installations is established in AFI 32-7042, *Waste Management*. AFI 32-7042 incorporates by reference the requirements of RCRA Subtitle D (40 CFR Parts 240 through 244, 257, and 258) and all other applicable federal regulations, AFIs, and DoD directives. In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program that incorporates the following: a solid waste management plan; procedures for handling, storage, collection, and disposal of solid waste; record keeping and reporting; and recycling of solid waste.

All municipal (nonhazardous) solid waste generated on-base is collected and transported off-base by a private contractor and disposed of at the City of Del Rio Landfill, approximately 5 miles from Laughlin AFB. With a disposal area of approximately 207 acres, the City of Del Rio Municipal Landfill accepted 61,034 tons of solid waste in 2010, including C&D waste. Assuming current disposal rates, the remaining life expectancy of the landfill is 7 years with a capacity of 422,878 tons remaining (TCEQ 2011). In Fiscal Year (FY) 2010, Laughlin AFB averaged diverting 40 percent of material that was destined to the landfill through recycling, reuse and composting diverted material (Laughlin AFB 2010a).

Although Laughlin AFB owned and operated an on-base landfill from 1942 until 1975, no on-base landfill is in operation. The former on-base landfill site is now ERP site LF001. The Laughlin Recycling Center is in Building 2018 and is managed by a private contractor. The recycling center collects from 25 sites throughout the base but no longer includes privatized housing. Grounds maintenance waste and privatized housing yard waste are composted to the maximum extent possible (Laughlin AFB 2010a).

Recycled items are managed through the CTRA (Cooperative Teamwork & Recycling Assistance). The recycling program includes materials for which a market exists in Texas and Mexico. The materials separated from solid waste for recycling include:

- Metals (sorted into several categories per DRMS guidance) and aluminum cans;
- High quality paper; newspaper; cardboard (shipping boxes are baled for collection);
- Lead/acid batteries (recycled locally); and
- Used oil (picked up and recycled).

Tires are turned in to tire suppliers in lieu of core charges by the personnel responsible for maintenance of the specific vehicle. Additionally, laser printer and copier toner cartridges are turned in for recycling from all work centers that use them. Bond paper and printer toner cartridges are found in virtually every work center. Spent fluorescent light tubes and non-lead/acid batteries (which are managed and disposed of through a private contractor as universal waste), are also ultimately recycled.

3.11.4 Environmental Restoration Program

The Environmental Restoration Program (ERP), formerly known as the Installation Restoration Program, was developed by the Department of Defense (DoD) in 1984 in order to identify, investigate, and remediate potentially hazardous material disposal sites on DoD property. Once the areas and constituents had been identified, the ERP was tasked to remove or monitor the hazards in an environmentally responsible manner. All response actions are based on provisions CERCLA, and the *Superfund Amendments and Reauthorization Act of 1986* as clarified in 1991 by EO 12580, Superfund Implementation. The installation also manages Military Munitions Response Program (MMRP) sites. The MMRP was established to address unexploded ordnance (UXO), discarded military munitions (DMM), and munitions constituents (MC) located on current and former defense sites (USAEC 2011). These sites are separate from operational ranges or munitions storage facilities. In addition to ERP and MMRP sites, the installation also identifies those areas that have had known or suspected contamination. These Areas of Concern (AOC) undergo investigation to determine whether the site requires corrective action or remediation. If an AOC site cannot be remediated, and it poses a significant impact to human health and the environment, the site may become a CERCLA site regulated by State or Federal agencies.

Under the ERP, 20 contaminated sites were identified. Of those, 16 have received regulatory closure as of December 2011. Additionally, three MMRP sites remain open. None of the open ERP or MMRP sites are located at or would be disturbed by the proposed construction and demolition, or alternatives. The Airfield Improvement Projects would impact three closed ERP sites and be in the vicinity of three open ERP sites. The alternate location for the Small Arms Range would be located near (within 1/4 mile) an open MMRP site (Former West Pistol Range). Table 3-15 provides additional information about the sites (Laughlin AFB 2011c).

Table 3-15. Open ERP and MMRP sites

Site ID	Site name	Type	Description
FT005	Fire Training Area	ERP	Fire training exercises were held regularly in open, unlined pits from 1952-1983. Materials used at the site include: AVGAS, MOGAS, JP-4, JP-TS, engine oil, transformer oil, solvents, and extinguishing agents.
SS014	Fuel Receiving and Storage Area	ERP	Site is in the north-central area of Laughlin, adjacent to the northwest portion of the airfield area. Historically, the site was used for the storage and transportation of JP-4 and AVGAS. Facility is composed of six 25,000-gallon underground storage tanks (USTs), underground distribution lines, and a pumping station. The pipelines are no longer in use and have been grouted in-place. The USTs and the distribution line areas have shown signs of groundwater and soil contamination.
ST003	Defuel Pit	ERP	Site is the location of a former 1,000-gallon UST underneath aircraft parking apron next to Building 414. From 1942 to 1974; oils, solvents, transformer oils, and waste fuel were stored in the tank. After 1974 JP-4 was stored in the tank. The tank was removed in 1989.
SS016	MARS Building and Area	ERP	Groundwater samples indicate elevated levels of trichloroethylene (TCE) in groundwater. The exact nature of the contamination has not been determined
N/A	Former Grenade Range	MMRP	Located north of airfield
N/A	Former West Skeet Range	MMRP	Located west and adjacent to northern base housing area
N/A	Former West Pistol Range	MMRP	Extends from just south of the Former West Skeet Range to south of the golf course in the vicinity of the west gate.

Source: Laughlin AFB 2011i.

Notes:

AOC = Area of Concern
 AVGAS = Aviation Gasoline
 JP = Jet Propellant
 MOGAS = Motor Gasoline
 RA-O = Remedial Action Operation
 SI = Site Inspection
 UST = underground storage tank

4.0 ENVIRONMENTAL CONSEQUENCES

This section presents the environmental consequences of the Proposed Action and alternatives at Laughlin AFB for each of the resource areas discussed in Section 3. To define the consequences of implementing the Proposed Action and alternatives, this section evaluates the project elements described in Section 2 and compares them to the affected environment as described in Section 3. Section 5 presents the Cumulative effects of the Proposed Action and alternatives with other foreseeable future actions.

4.1 LAND USE

Potential effects on land use from the proposed action were determined by evaluating whether an action would be compatible with existing land use and in compliance with existing land use plans and policies. Potential land use effects were analyzed by (1) identifying and describing land uses that could affect or be affected by the Proposed Action, (2) assessing the degree to which construction or operation of facilities would interfere with the activities or functions of adjacent existing or proposed land uses, and (3) determining whether interference with adjacent or nearby land use would be incompatible to the point that public health or safety would be threatened.

4.1.1 Aerospace Physiology Facility

Proposed Action

Constructing a new Aerospace Physiology Facility and demolishing the existing facility (Building 380) would be consistent with the Base General Plan and the Campus Center Area Development Plan (ADP). A land use change would result, but the change would not conflict with existing, future, or surrounding land use. Operation of the proposed facility would not adversely affect adjacent land use because it is compatible with all surrounding land usage. As a result, no effects on land use would occur from implementing the Proposed Action.

Alternative A

Alternative A would involve expanding the existing Flight Simulator facility and demolishing the existing facility (Building 380). These actions would not conflict with existing, future, or surrounding land use, because the site is already classified as industrial land use. The alternate site is consistent with the Base General Plan and the Campus Center ADP. The expansion of the existing Flight Simulator facility would not adversely affect adjacent land use and would not result in a change to existing land use at the project site. As a result, no effects on land use would occur from implementing Alternative A.

No Action Alternative

No change to existing land use would occur under the No Action Alternative because no construction or demolition would occur.

4.1.2 Student Officer Quarters

Proposed Action

Implementing the Proposed Action would not result in undesirable land use interactions or be incompatible with existing, future, or surrounding land use at the project site. The proposed SOQ location and the demolition of Buildings 9200–9220 would not conflict with the existing or surrounding land use. The proposed project is consistent with the Base General Plan and the Community Center ADP. The Proposed Action would not interfere with the activities or functions of adjacent land uses.

No Action Alternative

No change to existing land use would occur under the No Action Alternative because no construction or demolition would occur.

4.1.3 Small Arms Facility

Proposed Action

Constructing a new Small Arms Facility would not result in undesirable or incompatible land use interactions at the proposed site or with adjacent land uses on- or off-base. The proposed Small Arms Facility is consistent with the Base General Plan; however, a land use change would result from implementing the Proposed Action. The change would result in an industrial land use designation. As a result, no adverse effects would result from implementing the Proposed Action.

Alternative A

Constructing a new Small Arms Facility at the alternate location would not conflict with the existing or surrounding land uses on- or off-base. Constructing a new facility at this location would result in a land use change from open space to industrial; however, it would not result in any incompatible land use interactions and no adverse effects would occur.

No Action Alternative

No change to existing land use would occur under the No Action Alternative because no construction or demolition would occur.

4.1.4 Airfield Improvement Projects

Proposed Action

No effects would occur. The proposed stormwater drainage infrastructure improvements would not result in any changes in land use at the project site or surrounding areas.

Alternative A

No effects would occur. Effects on land use under Alternative A would be identical to those under the Proposed Action.

Alternative B

No effects would occur. Effects on land use under Alternative B would be identical to those under the Proposed Action.

No Action Alternative

No change to existing land use would occur under the No Action Alternative because no construction or other ground-disturbing activities would occur.

4.2 AIR QUALITY

Potential effects on Air Quality were determined by evaluating whether an action would result in increases of criteria pollutants to a level that exceeded the minimum allowable threshold under the CAA, or Title V permit threshold. Additional consideration was given to whether the action would emit HAPs

as defined under the CAA. The ROI for air quality for this EA was defined as Val Verde County, Texas, where Laughlin AFB is located.

The regulations in TAC Title 30, Part 1, Chapters 115, Subchapters A through J would apply to the proposed action. These regulations outline standards and best management practices for reducing impacts to air quality during construction projects. These regulations are designed to help minimize particulate emissions from the Proposed Action in addition to emissions from mobile sources and surface coating. The existing air permit for Laughlin AFB would need to be updated to include the new boilers and emergency generators under the Proposed Action. It is anticipated that the proposed equipment would be more efficient than the existing equipment resulting in an overall reduction in emissions; however, they would be included in Laughlin AFB's annual stationary source air emission inventory.

AFI 32-7040 requires installations to conduct preconstruction reviews to determine if the source's potential to emit are equal to or greater than applicable regulated pollutant thresholds, and obtain a permit before commencement of construction or modification activities. PSD permits apply to new major sources or major modifications at existing sources in areas designated attainment or unclassifiable for a particular NAAQS. For specific source categories a new major source has a Potential to Emit (PTE) of 100 tons per year or more for at least one of the NAAQS, otherwise the threshold is set at 250 tons per year. Laughlin AFB is not considered a major source and the proposed action would not push the base over the major threshold.

In accordance with the general conformity review, the proposed action does not exceed the de minimis thresholds established by the Title V permit described in the Affected Environment Section. All criteria emissions under the proposed action allow Laughlin AFB to meet its commitment to the synthetic minor permit. Appendix A explains in further detail the calculations used to determine significance.

Table 4-1. Estimated Criteria and GHG Emissions by Project

	VOC	NO _x	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	CO ₂	CH ₄	N ₂ O	CO ₂ e
Project	tons/yr										MT/yr			
Aerospace Physiology	1.18	5.50	5.25	0	0.34	0.35	0.69	0.05	0.35	0.41	667.08	0.07	0	668.80
Officers' Quarters	2.10	9.27	8.44	0	0.68	0.54	1.21	0.15	0.53	0.68	1,137.22	0.11	0	1,139.69
Small Arms	0.96	3.26	2.97	0	0.16	0.21	0.37	0.00	0.21	0.21	405.51	0.06	0	406.39
Storm water	0.26	2.03	1.15	0	0.80	0.11	0.91	0.16	0.11	0.27	164.91	0.02	0	165.36
Permit Threshold	94	45	99.5	10	-	-	23.6	-	-	23.6	-	-	-	-
Total	4.50	20.06	17.81	0	1.98	1.21	3.18	0.36	1.20	1.57	2,374.72	0.26	0	2,380.24

4.2.1 Aerospace Physiology Facility

Proposed Action

C&D of buildings would result in temporary increases in engine exhaust emissions from using vehicles and equipment with internal combustion engines. The combustion of gasoline and diesel would emit VOCs, NO_x, SO_x, CO, and PM_{2.5}. Additionally, a number of HAPs are emitted from combustion. These include benzene, toluene, xylene, propylene, 1,3-butadiene, formaldehyde, acetaldehyde, acrolein, and naphthalene. Demolition and construction would also result in fugitive dust emissions (PM_{2.5} and PM₁₀) from activities such as structural demolition, grading, and trenching. During C&D, CO emissions would result from fuel combustion in construction equipment. The combustion of diesel fuel is the largest source of CO on a construction or demolition site. The construction of the new facility would not require a federal, state, or local construction air permit or a post-construction operating permit because the facility would be de minimis for air emissions as determined by the TCEQ. These effects would be minor and short-term, only occurring during the project period.

Although effects would be minor, certain best management practices would be used to further minimize impacts. Fugitive dust emissions (PM₁₀) would be reduced during C&D by spraying exposed soil and debris with water and promptly revegetating disturbed areas. Vehicle emissions can be further reduced by limiting the amount of time that demolition vehicles are idling while at the project site. No new stationary sources or additional personnel would be added to the base as a result of construction or demolition activities. Additionally, total demolition activities would be spread out over 4 to 6 years and would not be expected to generate long term effects on regional air quality or climate change.

Alternative A

Under Alternative A, the new Aerospace Physiology Facility would be housed in an addition to the Flight Simulator (Building 328). Under this scenario, some of the administrative functions would likely be shared in existing space. The result would be a smaller area of disturbance and reduced effects when compared to the Proposed Action. Therefore, effects on air quality or climate change under Alternative A would be minor and short-term during the project period. No long-term effects on regional air quality would be expected.

No Action Alternative

No effects on air quality or climate change from facility construction or demolition would result under the No Action Alternative. No buildings would be constructed or demolished, and air quality would not be altered.

4.2.2 Student Officer Quarters

Proposed Action

Effects on air quality and climate change under the Proposed Action would be similar to those described for C&D of the Aerospace Physiology Facility. An increase in students living in close proximity to work centers on-base would result in a slight reduction in emissions related to the operation of privately owned vehicles. No federal, state, or local construction permits would be required. Only minor, short-term effects would be expected during the C&D. No long term effects on regional air quality would be expected.

No Action Alternative

No effects on air quality or climate change from facility construction or demolition would result under the No Action Alternative. No buildings would be constructed or demolished, and air quality would not be altered.

4.2.3 Small Arms Facility

Proposed Action

Effects on air quality or climate change under the Proposed Action would be similar to those described for C&D of the Aerospace Physiology Facility. However, the proposed facility could qualify for permits by rule if it were to operate a boiler, heater, or emergency generator. The PBR would apply because expected emissions would be above the *de minimis* standards but below the basic thresholds for a state operating permit. No federal, state, or local construction permits would be required. Only minor, short-term effects would be expected during the C&D. No long-term effects on regional air quality or climate change would be expected.

Alternative A

Constructing a new Small Arms Facility at the alternate location would be just as described under the Proposed Action; therefore, effects on air quality and climate change would be identical. Only minor, short-term effects would be expected during the C&D activities. No long-term effects on regional air quality would be expected.

No Action Alternative

No effects on air quality or climate change from facility construction or demolition would result under the No Action Alternative. No buildings would be constructed or demolished, and air quality would not be altered.

4.2.4 Airfield Improvement Projects

Proposed Action

Grading and trenching activities would result in temporary increases in engine exhaust emissions and fugitive dust (PM_{2.5} and PM₁₀). During the project period, exposed soil and debris would be sprayed with water, and disturbed areas would be promptly revegetated. No federal, state, or local construction permits would be required. Only minor, short-term effects would be expected during the project period. No long-term effects on regional air quality or climate change would be expected.

Alternative A

Under Alternative A, effects on air quality and climate change would be similar to those described under the Proposed Action. The smaller area of disturbance and shorter duration of activities would further minimize any minor, short-term effects that would be expected. No long-term effects on regional air quality or climate change would be expected.

Alternative B

Under Alternative B effects on air quality and climate change would be similar to those described under the Proposed Action. Because of the nature of this Alternative, fugitive dust emissions (PM_{2.5} and PM₁₀) would be expected to be greater than Alternative A. This is a result of the location and type of terrain that is at the end of the runway. However, they would still be substantially less than expected under the

Proposed Action. The smaller area of disturbance and shorter duration of activities would further minimize any minor, short-term effects that would be expected to occur. No long-term effects on regional air quality or climate change would be expected.

No Action Alternative

No effects on air quality or climate change would result under the No Action Alternative. No soils or pavements would be disturbed, and air quality would not be altered.

4.3 NOISE

The criteria for determining the significance of effects on noise are based on whether an action alters the existing noise environment to a point where it either increases or reduces the number of sensitive receptors exposed to unacceptable noise levels, as measured by DNL.

4.3.1 Aerospace Physiology Facility

Proposed Action

Short-term increases in noise would result from the use of heavy equipment at the demolition and construction sites. Long-term effects would be expected from relocating the facility from noise zone I into noise zone II.

Individual pieces of construction equipment typically generate noise levels of 80 to 90 dBA at a distance of 50 feet. With multiple items of equipment operating concurrently, noise levels can be relatively high in the daytime at locations within several hundred feet of active construction sites. The zone of relatively high construction noise typically extends to distances of 400 to 800 feet from the site of major equipment operations. Locations farther than 800 feet from construction sites seldom experience noteworthy levels of construction noise.

Given the temporary nature of proposed construction activities and the limited amount of noise that construction equipment would generate, this effect would be minor. Noise from construction activities would be minimal and confined primarily to C&D areas during the project period. Limited truck and worker vehicle traffic might be audible at some nearby locations. These effects would be negligible.

No long-term increases would occur in the overall noise environment (e.g., DNL) with the relocation of the Aerospace Physiology Facility. No changes in military training activities or aircraft operations would occur. Therefore, no long-term changes would be expected in the noise environment associated with these sources.

The proposed facility would be relocated from noise zone I into noise zone II. The facility would be exposed to higher levels of military aircraft activity and associated noise. Schools are conditionally compatible with noise zone II; however, Noise Level Reduction (NLR) measures would need to be incorporated into the design and construction of the building to ensure that activities in the facility could operate without interruption. These measures would not reduce noise outside the proposed building, and they would affect the budget and design of the facility. For these reasons, long-term effects would be moderate and below the level of significance. .

Alternative A

As with the proposed location and for similar reasons, demolition and construction activities would be expected to have short-term minor adverse effects. No long-term increases would occur in the overall noise environment with the relocation of the facility. However, as with the proposed site, the facility

would be in noise zone II, and NLR measures would need to be incorporated into the design and construction of the building addition to ensure that activities in the facility could operate without interruption. Long-term noise effects from this activity would be below the level of significance.

No Action Alternative

No effects from noise would occur under the No Action Alternative. No buildings would be constructed or demolished, and noise levels would not be altered.

4.3.2 Student Officer Quarters

Proposed Action

The nature and overall levels of construction noise would be similar to those outlined under the Aerospace Physiology Facility. However, heavy equipment noise would be near the demolition site of the existing housing and the construction site of the proposed housing and would be audible to residents in housing units close to the demolition area. As with the Aerospace Physiology Facility and for similar reasons, these activities would be expected to have short-term minor adverse effects.

No long-term increases in the overall noise environment (e.g., DNL) would occur with the relocation of the SOQ. No changes in military training activities or aircraft operations would occur. Therefore, no long-term changes would occur in the noise environment associated with these sources. The proposed SOQ would be within noise zone I, which is fully compatible with residential land uses. The effects would be negligible and only short-term minor adverse effects would be expected.

No Action Alternative

No effects from noise as a result of facility construction, demolition, or operation would occur under the No Action Alternative. No buildings would be constructed or demolished, and noise levels would not be altered.

4.3.3 Small Arms Facility

Proposed Action

The nature and overall levels of construction noise would be similar to those outlined under the Aerospace Physiology Facility. However, heavy construction noise would be near the demolition site of the existing facility and the construction site of the proposed Small Arms Facility. As with the Aerospace Physiology Facility and for similar reasons, the activities would be expected to have short-term minor adverse effects.

Long-term minor beneficial effects would be expected. All small arms training and associated noise at the existing facility would end. Training at the proposed facility would be completely enclosed in the range, and no outdoor live-fire small arms activities would occur at the facility. Controls would be put in place to ensure that the noise would be inaudible at nearby facilities.

Alternative A

As with the Proposed Action site and for similar reasons, demolition and construction activities would be expected to have short-term minor adverse effects. As with the proposed site, all small arms training at the existing facility would end. All firing would occur indoors, and controls would be put in place to ensure that the noise would be inaudible at nearby facilities. Overall long-term changes in the noise environment would be beneficial and would likely result in only short-term minor adverse effects.

No Action Alternative

No effects from noise as a result of facility construction, demolition, or operation would be expected to occur under the No Action Alternative. No buildings would be constructed or demolished, and noise levels would not be altered.

4.3.4 Airfield Improvement Projects

Proposed Action

The nature and overall levels of heavy equipment noise would be similar to those outlined under the Aerospace Physiology Facility. However, heavy construction noise would be near the work associated with the stormwater infrastructure upgrades. As with the Aerospace Physiology Facility and for similar reasons, these activities would be expected to have short-term minor adverse effects. Note that all activities associated with this project would take place in areas already exposed to high levels of aircraft noise.

No long-term increases would be expected in the overall noise environment with the stormwater infrastructure upgrades. No changes in military training activities or aircraft operations would occur. Therefore, no long-term changes would occur in the noise environment associated with these sources, and only short-term minor adverse effects would be expected.

Alternative A

Under Alternative A, effects from noise would be similar to those described in the Proposed Action. No long-term increases would occur in the overall noise environment, and no changes in military training activities or aircraft operations would occur. Therefore, no long-term changes would be expected in the noise environment associated with these sources.

Alternative B

Under Alternative B, effects from noise would be similar to those described in the Proposed Action. No long-term increases would occur in the overall noise environment, and no changes in military training activities or aircraft operations would occur. Therefore, no long-term changes would be expected in the noise environment associated with these sources.

No Action Alternative

No effects from noise as a result of grading and trenching would result under the No Action Alternative. Noise levels would not be altered above what is already experienced at the airfield.

4.4 GEOLOGY AND SOILS

The criteria for determining the significance of effects on geology and soils are based on the extent that a proposed action would alter or be affected by geologic or soil resources, such as top soils, mineral reserves, seismic activity, or unique or important land forms. The potential for large, uncontrolled erosion or sedimentation was also evaluated.

4.4.1 Aerospace Physiology Facility

Proposed Action

The demolition site (Building 380) and the site of the proposed Aerospace Physiology Facility are both underlain by soils of the ZaC Complex. These soils are well drained, surface runoff is medium, and

permeability is moderate. The water erosion hazard is moderate. Both sites are in an already heavily developed area of the base. Soils of the ZaC Complex are considered poorly suited to most urban uses. The cemented pan, thin surface layer, and corrosivity to uncoated steel are the main limitations. However, the majority of existing infrastructure on the base has been built atop ZaC Complex soils (USDA 2012).

Constructing the proposed Aerospace Physiology Facility would not be expected to have significant short-term or long-term adverse effects on geology and soils at Laughlin AFB. The area affected would be stabilized with compacted fill. Removing trees, bushes, and grasses during construction could cause or accelerate surface erosion during rain events; however, proper erosion control measures described in Section 2 would minimize the likelihood of this occurring. Although ZaC Complex soils are not considered suitable to most urban uses because of the cemented pan, thin surface layer, and corrosivity to uncoated steel, existing buildings surrounding the proposed construction site suggest that at Laughlin AFB, ZaC Complex soils are likely suitable for building construction and excavation of the cemented pan is manageable. Foundation instability would not be likely because soils of the ZaC Complex are not characterized by shrinking and swelling clays. Corrosion of associated piping would not be likely because utilities would not consist of uncoated steel.

Building 380's demolition would not be expected to have significant short-term or long-term adverse effects on geology and soils at Laughlin AFB because the area affected would be graded, stabilized, and revegetated. Some importing of fill could occur, if warranted.

Alternative A

No short-term or long-term adverse effects would be expected. The site of the alternative option for the Aerospace Physiology Facility is underlain by the same soils as the proposed site location. The same effects from soils and geologic hazards as discussed under the Proposed Action would apply to the alternate site location.

No Action Alternative

No effects on geology or soils as a result of facility construction, demolition, or operation would occur under the No Action Alternative. No buildings would be constructed or demolished, and conditions would not be altered.

4.4.2 Student Officer Quarters

Proposed Action

The nature and overall effects of C&D on geology and soils would be similar to those outlined under the Aerospace Physiology Facility. The demolition site (Buildings 9200–9220) and the site of the proposed SOQ are both underlain by soils of the ZaC Complex. Therefore, no short-term or long-term adverse effects would be expected.

No Action Alternative

No effects on geology or soils as a result of facility construction, demolition, or operation would occur under the No Action Alternative. No buildings would be constructed or demolished, and conditions would not be altered.

4.4.3 Small Arms Facility

Proposed Action

The demolition site (Building 1100) and the site of the proposed Small Arms Facility are both underlain by OmD soils. These soils are well drained, surface runoff is medium, and permeability is moderate in the upper part and slow in the indurated caliche. The water erosion hazard is moderate. The OmD soils are considered poorly suited to most urban uses, because of the cemented pan, small stones, thin surface layer, and corrosivity to uncoated steel. In addition, the east end of the existing Small Arms Facility is underlain by CoB soils. These soils are well drained, surface runoff is medium, and permeability is moderate. The water erosion hazard is slight to moderate. This soil is moderately well suited to most urban uses. Excess lime, shrinking and swelling, low strength under roads and streets, corrosivity to uncoated steel, and seepage are the main limitations.

The demolition of the existing Small Arms Facility would not be expected to have significant short-term or long-term adverse effects on geology and soils at Laughlin AFB because the area affected would be graded, stabilized, and revegetated. Some importing of fill could occur, if warranted. The newly cleared area could be subject to increased surface erosion during rain events; however, proper erosion control measures described in Section 2 would minimize the likelihood of this occurring.

Construction of the proposed Small Arms Facility would have no significant short-term or long-term adverse effects on geology and soils at Laughlin AFB. The area affected would be stabilized with compacted fill. Removing trees, bushes, and grasses during construction could cause or accelerate surface erosion during rain events, however proper erosion control measures described in Section 2 would minimize the likelihood of this occurring. Although OmD soils are considered poorly suited to most urban uses because of the cemented pan, small stones, thin surface layer, and corrosivity to uncoated steel, existing buildings on-base that are on top of OmD soils suggest that excavating the cemented pan would be manageable (the hard, indurated caliche consists of a thin, 6-inch layer). Foundation instability would not be likely because OmD soils are not characterized by shrinking and swelling clays. Corrosion of associated piping would not be likely because utilities would not consist of uncoated steel. Soil contamination from small arms munitions would not be a concern at the new location, because the facility would be a fully contained indoor range.

Alternative A

No short-term or long-term adverse effects would be expected. The potential effects on the Alternate Site for the Small Arms Facility on geology and soils and geologic hazards would be identical to the effects as described in the Proposed Action because this location also overlays OmD soils.

No Action Alternative

No effects on geology or soils would be expected under the No Action Alternative. No buildings would be constructed or demolished, and conditions would not be altered.

4.4.4 Airfield Improvement Projects

Proposed Action

The project site is primarily underlain by ZaC and AcB soils, with a minor occurrence of OmD soils in the southeastern end of the center runway, where the culvert drainages would be diverted and fill soil would be added to meet slope requirements. The ZaC and AcB soils are well drained, surface runoff is medium, and permeability is moderate. The water erosion hazard is moderate for ZaC and OmD soils, and slight to moderate for AcB soils. The ZaC and OmD soils are considered poorly suited to most urban

uses because of the cemented pan, thin surface layer, and corrosivity to uncoated steel. The AcB soils are considered moderately well suited to most urban uses; however, seepage, clayey texture, excess lime, shrinking and swelling, low strength under roads and streets, and corrosivity to uncoated steel are the main limitations ascribed to AcB soils.

Expansion and improvement of the stormwater drainage system would not be expected to have significant short-term or long-term effects on geology and soils at Laughlin AFB. The existing stormwater drainage infrastructure on the base indicates that excavation of the cemented pan would not be a concern for this project. Corrosivity of the soils would not be a concern because the stormwater pipes would be constructed of reinforced concrete and uncoated steel would not be used. Shrinking and swelling soils would not be a concern because they occur only at the southeastern extremity of the project site, where culvert drainages would be diverted and backfill soil would be added to meet slope requirements. In general, existing infrastructure that has been built in and on top of the soils in the area would simply be expanded and replaced. No indications exist that the soils on-base have negatively affected the existing infrastructure.

Exposure of surface soils during construction activities could cause or accelerate surface erosion during rain events; however, implementing proper erosion control measures described in Section 2 would minimize the likelihood of this occurring.

Alternative A

Under Alternative A, effects on geology and soils would be similar to those described in the Proposed Action. No short- or long-term adverse effects would be expected.

Alternative B

Under Alternative B, effects on geology and soils would be similar to those described in the Proposed Action. No short or long-term adverse effects would be expected.

No Action Alternative

No effects on geology or soils would be expected under the No Action Alternative. No ground disturbance would occur, and conditions would remain unchanged.

4.5 WATER RESOURCES

Water resources include all surface and groundwater. For the purposes of this analysis, those water resources in the proposed project area, and the watershed areas affected by existing and potential surface water runoff, were investigated. The criteria for determining the significance of effects on water resources are based on water quantity, quality, and use; whether they occur in a 100-year floodplain or wetland; consume or add to surface water or groundwater resources, alter surface water flow patterns that could affect storm runoff, or alter releases of pollutants to water, or land (surface water drainages) that would affect the hydrologic system.

4.5.1 Aerospace Physiology Facility

Proposed Action

During C&D the potential for runoff and sediment loading of surface water would be present. This is a result of grading and disturbance of existing vegetation at the project sites. When this occurs, stormwater runoff that would normally be allowed to infiltrate into the ground or runoff at a much slower rate is increased and can cause increased erosion and sedimentation in receiving waters. Because this project is

expected to disturb more than one acre, coverage under Texas Construction General Permit (TXR150000) would be required. Coverage under this permit requires creating and adhering to a Stormwater Pollution Prevention Plan. Some measures to minimize the effects of stormwater runoff typically include installing silt fences, storm drain inlet and outlet protection, covering dirt piles, and using buffer zones around nearby streams. Implementing appropriate measures during short-term C&D would control the discharge of stormwater from project sites and would not cause or contribute to exceedances of water quality standards.

Long-term effects on surface water quality from the increase of impervious surface could occur. Replacing the Aerospace Physiology Facility would result in an increase of 91 SF of impervious surface, increasing the amount of runoff being discharged off the installation by 0.0929 acre feet³. The increased runoff has the potential to increase sediment loads within receiving waterbodies; however, the amount is negligible because of the small increase in runoff and no long-term adverse effects would occur.

The proposed project would not result in a long-term adverse effect on the quality or quantity of groundwater at Laughlin AFB or the surrounding area. During C&D activities, water could be used to decrease the amount of fugitive dust at the project site. That would result in a short-term increase in water usage, and thus an increase in groundwater withdrawal. The use of water for this purpose would end when the project is completed. Additionally, any landscaping would require an increase in water usage for up to a year to ensure that plants are established. This would be temporary and would not persist past the point necessary to ensure plant viability. A new facility would result in the use of water-saving devices that could decrease the amount of water used in the facility, reducing the amount of water withdrawn from the Edwards-Trinity Aquifer. The amount is not quantifiable.

Alternative A

The nature and overall effects of C&D on water quality would be similar to those described under the Proposed Action. The addition to Building 328 would be smaller than a standalone facility and would therefore result in reduced impervious surface and runoff leaving the project site. As a result, only minor short-term adverse and no long-term effects would be expected.

No Action Alternative

No effects on water resources would occur under the No Action Alternative. No buildings would be constructed or demolished, and conditions would not be altered.

4.5.2 Student Officer Quarters

Proposed Action

The nature and overall effects of C&D on surface and groundwater quality would be similar to those described for the Aerospace Physiology Facility. The project would result in an overall decrease in impervious surface on the installation allowing for a potential reduction of 0.2153 acre feet of water that would be discharged off the installation and, thus, a potential decrease in potential sedimentation. Minor short-term adverse and minor beneficial long-term effects would be expected.

Groundwater effects would be similar to those described for the Aerospace Physiology Facility.

³ Acre-feet determination is based on the SCS Curve Number Procedure. Precipitation equaled average rainfall during a 5-year event over 1 hour and CN coefficient equaled 100 (pavement/roof)

No Action Alternative

No effects on water resources would occur under the No Action Alternative. No buildings would be constructed or demolished, and conditions would not be altered.

4.5.3 Small Arms Facility

Proposed Action

The nature and overall effects of C&D on surface and groundwater quality would be similar to those described for the Aerospace Physiology Facility Lab. The soils surrounding the facility contain elevated levels of lead; however, demolition activities would be limited to the building itself and surrounding soils would not be disturbed. Therefore, existing conditions would not change with regards to potential effects from lead being carried in stormwater runoff. Silt fences and promptly replanting disturbed areas would further minimize this risk. A potential exists for long-term effects on surface water quality because of the increase of impervious cover. The overall effect of C&D of the new facility would be an increase in impervious surface. The expected increase would result in an additional 0.093 acre feet of water to be discharged off the installation; however, the amount is negligible, and no long-term adverse effects would be expected. Groundwater effects would be similar to those described for the Aerospace Physiology Facility.

Alternative A

Minor short-term adverse and no long-term effects would be expected. Under Alternative A, the Small Arms Facility would be constructed at a location near the west gate. The nature and overall effects of C&D on water quality would be similar to those described for the Proposed Action.

No Action Alternative

No effects on water resources as a result of facility construction, demolition, or operation would occur under the No Action Alternative. No buildings would be constructed or demolished, and conditions would not be altered.

4.5.4 Airfield Improvement Projects

Proposed Action

Implementing the Proposed Action would be expected to result in a long-term positive effect on the quality of surface water on and departing Laughlin AFB. Repairing areas that are allowing additional sediment to enter into the stormwater system would decrease the amount of suspended solids and potential contaminants (from roadways and airfield) removed from these areas. In addition, increasing the capacity of the system would allow for runoff to be contained in the system rather than running off into areas that cannot accommodate increased stormwater runoff. During the project period, temporary stormwater control measures would be used to ensure that runoff from exposed soils cannot leave the project site and discharge to receiving waters. When the project is complete, the site would be promptly revegetated, and soil retention blankets would be installed on slopes 6:1 or steeper.

The activities associated with the Proposed Action to improve the stormwater drainage infrastructure would not be expected to affect groundwater quality or quantity. No additional water use would be expected and groundwater would not be expected to be encountered. Minor short-term adverse and long-term beneficial effects would be expected.

Alternative A

Minor short-term adverse and long-term beneficial effects would be expected. Under Alternative A, the nature and overall effects of stormwater infrastructure repairs on surface and groundwater quality would be similar to those described for the Proposed Action. However, the steep slopes at the southeastern edge of the runway would remain. Steep slopes can exacerbate erosion resulting from stormwater runoff.

Alternative B

Minor short-term adverse and long-term adverse effects would be expected. Under Alternative B, the existing stormwater issues would not be corrected. Stormwater flows between the concrete seams in the apron would continue to erode base and sub-base materials under the apron and causing materials to be deposited on the airfield pavements and potentially to receiving waters. The transportation of this material could result in increased sedimentation of downstream waters, negatively affecting water quality.

No Action Alternative

Under the No Action Alternative, no stormwater infrastructure repairs would occur. The existing steep slopes and eroding base and sub-base materials would not be corrected. This would result in continued degradation of conditions at the airfield. Downstream water quality would become increasingly at risk for sedimentation and impairment.

4.6 BIOLOGICAL RESOURCES

Effects on biological resources would be considered significant if special-status species or their habitats, as designated by federal, state, or local agencies, were affected directly or indirectly by project-related activities. In addition, effects on biological resources would be considered significant if substantial loss, reduction, degradation, disturbance, or fragmentation occurred in native species habitats or in their populations. Effects would be considered significant if project-related activities would temporarily or permanently disturb wetlands or waters of the United States. These could be short- or long-term effects; for example, short-term or temporary effects could occur during project implementation, and long-term effects could result from loss of vegetation and thereby loss of the capacity of habitats to support wildlife populations.

4.6.1 Aerospace Physiology Facility

Proposed Action

Demolition of the Aerospace Physiology Facility (Building 380) would cause disturbance in an already developed area, and would disturb only landscaped vegetation surrounding the immediate area associated with demolition activities. The demolition site is near the center of the base and is not adjacent to any contiguous native vegetation. Although construction of the new Aerospace Physiology Facility would result in clearing debris and vegetation of more than 1.5 acres, the site is still in improved areas of the base and would not affect contiguous native habitat. To control the spread of noxious weeds, the disturbed areas in the project area would be reseeded with native vegetation, where feasible.

Potential wetlands, as mapped by the NWI classification system, have not been identified in the vicinity of the construction or demolition activities related to the Aerospace Physiology Facility and would therefore not be affected.

The central portions of the base lack contiguous viable habitat. As a result, wildlife and threatened and endangered species have not been observed, nor are they likely to be encountered in the vicinity of the Aerospace Physiology Facility or proposed location for the new facility. Special-status species surveys

would be conducted before construction of the new lab to determine if targeted species use the proposed locations. Wildlife and threatened and endangered species are therefore unlikely to be affected by C&D activities. Therefore, no short- or long-term adverse effects would be expected.

Alternative A

The nature and overall effects of C&D on biological resources would be similar to those described for the Aerospace Physiology Facility Lab. No contiguous native vegetation, wetlands, or viable habitat are at the project locations. No effects on biological resources would be expected from implementing Alternative A.

No Action Alternative

No effects on biological resources would be expected under the No Action Alternative. No buildings would be constructed or demolished, and conditions would not be altered.

4.6.2 Student Officer Quarters

Proposed Action

Demolition of Buildings 9200–9220 would not affect vegetation within contiguous habitat since activities would be within developed areas. Long-term effects resulting from removal of these buildings may benefit the existing area by adding habitat, because Buildings 9200–9220 are on the periphery of the unimproved portion of the base and is adjacent to intact, viable habitat. Restoration of the areas where the buildings are removed would be completed. Construction of the new SOQ would be in and improved area of the base and therefore would not affect contiguous habitat. Also, the location of the new SOQ would better centralize the developed areas on the base. Despite a potential disturbance area of up to 4.5 acres, the total development footprint would decrease by 59 percent.

Potential wetlands, as mapped by the NWI classification system, have not been identified in the vicinity of the demolition activities or construction activities related to the SOQ and would therefore not be affected.

Demolition of Buildings 9200–9220 could indirectly affect black-capped vireo and other wildlife in the adjacent habitat surrounding this location in the form of noise associated with demolition activities, and increased human disturbance. Pre-demolition surveys would be conducted to determine if black-capped vireo are present near the demolition site. However, these effects would be temporary and would occur only during the project. Long-term effects from removing these buildings could benefit threatened and endangered species by adding habitat.

No Action Alternative

No effects on biological resources would be expected under the No Action Alternative. No buildings would be constructed or demolished, and conditions would not be altered.

4.6.3 Small Arms Facility

Proposed Action

Demolition of the Small Arms Facility (Building 1100) could affect intact native vegetation and wildlife habitat in the short term, but demolition would benefit the location in the long term by revegetating the area and restoring it to a pre-development condition. Constructing the new Small Arms Facility would disturb native vegetation because of its proposed location on the periphery of the improved area on the

base. Despite these effects, the new Small Arms Facility would be expected to have beneficial effects by being self-contained, eliminating the potential of ricochet debris impacting nearby areas.

Potential wetlands, as mapped by the NWI classification system, have not been identified in the vicinity of the demolition activities or construction activities related to the Small Arms Facility and the Alternative A location and would therefore not be affected. Short-term adverse, but not significant, and potential long-term beneficial effects would be expected.

Wildlife and threatened and endangered species have not been observed nor are they likely to be encountered in the area of the proposed location for the new facility. Prior to construction or demolition of the Small Arms Facility, a special-status species surveys would be conducted to determine if these species are present.

Alternative A

The nature and overall effects of C&D on biological resources would be similar to those described for the Aerospace Physiology Facility Lab. Short-term effects on native vegetation and wildlife habitat would occur during facility construction. No contiguous native vegetation, wetlands, or viable habitat are at the project locations

No Action Alternative

No effects on biological resources would be expected under the No Action Alternative. No buildings would be constructed or demolished, and conditions would not be altered.

4.6.4 Airfield Improvement Projects

Proposed Action

Expanding and improving the stormwater drainage infrastructure would result in the relocation of utility lines, removing and replacing sidewalks and roads, and excavating and restoring grassed areas in the airfield in Drainage Area 1, which contains mostly improved and semi-improved areas. In addition, the installation of reinforced-concrete pipe and box culverts in the airfield and below Drainage Area 1 would allow for the stormwater system to connect to the drainage system along Barnes Street. The southeastern portion of the Airfield Improvement Area is adjacent to populations of longstalk heimia. Areas containing longstalk heimia would be marked and remain clear of disturbance, and efforts would be taken to preserve intact habitat surrounding the Airfield Improvement Area. No effects on wildlife habitat would occur.

Potential wetlands are south and east of the Airfield Improvement Area. However, improvements to stormwater drainage infrastructure along First Area and at the airfield would be expected to affect only the existing, man-made stormwater system and would not affect potential wetlands on-base. Improvements to the stormwater drainage infrastructure would reduce floods and subsurface cavities in Drainage Area 1 by connecting the stormwater system to the drainage system along Barnes Street. The drainage system is capable of handling the combined water flow. Therefore, no direct or indirect effects on potential wetlands would be expected.

Wildlife and threatened and endangered species have not been observed nor are they likely to be encountered in the area of the airfield improvements. Special-status species surveys would be conducted before the improvements of the stormwater drainage infrastructure along the periphery of the Airfield Improvement Area to determine if targeted species use the proposed locations. Potential effects on special-status species would be in line with effects on wildlife discussed above.

Alternative A

Under Alternative A, the nature and overall effects of grading and trenching on biological resources would be similar to those described for the Aerospace Physiology Facility Lab. No contiguous native vegetation, wetlands, or viable wildlife habitat are at the project site.

Alternative B

Under Alternative B, the nature and overall effects of grading and trenching on biological resources would be similar to those described under the Proposed Action. Areas containing longstalk heimia would be marked and remain clear of disturbance, and efforts would be taken to preserve intact habitat surrounding the Airfield Improvement Area.

No Action Alternative

No effects on biological resources would occur under the No Action Alternative. No stormwater infrastructure repairs or slope corrections would occur, and conditions would not be altered.

4.7 CULTURAL RESOURCES

In accordance with 36 CFR Part 800, the implementing regulations for the NHPA, an adverse effect on cultural resources is found when the proposed action could alter, directly or indirectly, any of the characteristics of a historic property that qualify it for inclusion on the NRHP in a manner that would diminish the integrity of a property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects could include reasonably foreseeable effects caused by the Proposed Action that occur later or farther in distance, or that are cumulative.

For the purposes of this analysis, effects on cultural resources are considered significant if prehistoric or historic-era resources that are eligible for listing or are formally listed on the NRHP are disturbed or destroyed. Direct effects are those in which project activities disturb or destroy the integrity of NRHP-listed or NRHP-eligible cultural resources. This can include ground-disturbing activities, noise or other vibrations, renovation, or removal. Indirect effects are those that could occur later but that can be reasonably predicted at the time of project implementation. A significant adverse effect also could occur if the project activities were not to abide by the established management documents, such as the ICRMP, or agreement documents, such as a Programmatic Agreement and specified lease provisions.

4.7.1 Aerospace Physiology Facility

Proposed Action

No NRHP-eligible resources, districts, or landscapes are in or near the proposed project locations; therefore, no effects would be expected. No archaeological resources have been identified or are suspected to be in the vicinity of the proposed new location of the Aerospace Physiology Facility or Building 380. The standard operating procedures identified in the ICRMP would be followed if accidental or inadvertent discoveries of historic properties occur during construction or demolition.

Building 380 was determined as not eligible in a 2002 study, with the caveat that the building (constructed in 1969) be re-evaluated when it became 50 years old. If Building 380's demolition is not completed before 2019, the building must be re-evaluated to determine potential consequences.

Alternative A

The nature and overall effects of C&D on cultural resources would be similar to those described for the Proposed Action. No NRHP-eligible built environment resources, districts, or landscapes are in or near the proposed project locations. No archaeological resources have been identified or are suspected to be in the vicinity of the proposed new location of the Aerospace Physiology Facility or Building 380.

No Action Alternative

No effects on cultural resources would be expected under the No Action Alternative. No buildings would be constructed or demolished, and conditions would not be altered.

4.7.2 Student Officer Quarters

Proposed Action

The nature and overall effects of C&D on cultural resources would be similar to those described for the Aerospace Physiology Facility. No NRHP-eligible built environment resources, districts, or landscapes are in or near the proposed project locations. No archaeological resources have been identified or are suspected to be in the vicinity of the proposed new location of the SOQ or Buildings 9200–9220.

No Action Alternative

No effects on cultural resources would be expected under the No Action Alternative. No buildings would be constructed or demolished, and conditions would not be altered.

4.7.3 Small Arms Facility

Proposed Action

The nature and overall effects of C&D on cultural resources would be similar to those described for the Aerospace Physiology Facility. No NRHP-eligible built environment resources, districts, or landscapes are in or near the proposed project locations. No archaeological resources have been identified or are suspected to be in the vicinity of the proposed new location of the Small Arms Facility or Building 1100.

Alternative A

The nature and overall effects of C&D on cultural resources would be similar to those described for the Aerospace Physiology Facility. No NRHP-eligible built environment resources, districts, or landscapes are in or near the proposed project locations. No archaeological resources have been identified or are suspected to be in the vicinity of the proposed alternate location of the Small Arms Facility or Building 1100.

No Action Alternative

No effects on cultural resources would occur as a result of facility construction, demolition, or operation under the No Action Alternative. No buildings would be constructed or demolished, and conditions would not be altered.

4.7.4 Airfield Improvement Projects

Proposed Action

No NRHP-eligible built environment resources, districts, or landscapes are in or near the proposed project locations. No archaeological resources have been identified or are suspected to be in the vicinity of the airfield improvement projects. The standard operating procedures identified in the ICRMP would be followed if accidental or inadvertent discoveries of historic properties occur during project execution. No short- or long-term adverse effects would be expected.

Alternative A

Under Alternative A, the nature and overall effects of the airfield improvement projects on cultural resources would be similar to those described for the Proposed Action.

Alternative B

Under Alternative B, the nature and overall effects of the airfield improvement projects on cultural resources would be similar to those described for the Proposed Action.

No Action Alternative

Under the No Action Alternative, there would be no effects on cultural resources. Airfield improvement projects would not occur.

4.8 SOCIOECONOMICS

Potential significant effects on socioeconomics were determined by evaluating (for better or worse) the effect that the action would have on the socioeconomic environment in any way, such as through changes in local economic bases, rates of employment/unemployment, salary levels, housing availability, cost of living, or access to health care or emergency services.

The economic effects of implementing the Proposed Action were estimated using the Economic Impact Forecast System (EIFS) model, a computer-based, economic tool that calculates multipliers to estimate the direct and indirect effects resulting from a given action. Changes in spending and employment that would be caused by the Proposed Action represents the direct effects of the action. Using the input data and calculated multipliers, the model estimated ROI changes in sales volume, income, employment, and population, accounting for the total direct and indirect effects of the action.

4.8.1 Aerospace Physiology Facility

Proposed Action

The expenditures and employment associated with the proposed construction of a new Aerospace Physiology Facility, demolishing Building 380, and constructing a new Aerospace Physiology Facility would be expected to increase ROI sales volume, employment, and income, as determined by the EIFS model (Table 4-1). The economic benefits would be for a short term, during the project period only. Such changes in sales volume, employment, and income would be within historical fluctuations (i.e., within the RTV ranges) and would be considered minor.

No effects would be expected on population. The Proposed Action to construct an Aerospace Physiology Facility does not involve assigning new personnel from outside the region to Laughlin AFB; therefore, this action would not change the population of Laughlin AFB or the ROI.

Table 4-2. EIFS model output, Aerospace Physiology Facility

Variable	Projected total change	Percent change	RTV range
Sales (business) volume	\$5,656,000	0.78%	-9.19% to 6.95%
Income	\$1,085,903	0.18%	-9.06% to 7.19%
Employment	36	0.19%	-3.85% to 6.53%
Population	0	0.00%	-1.99% to 2.30%

Source: EIFS model

No effects on housing, education, health care, and emergency services would be expected. The proposed Aerospace Physiology Facility would not result in a change in demand for housing, school enrollment, or emergency services.

Alternative A

Under Alternative A, the nature and overall effects on socioeconomics would be similar to those described for the Proposed Action.

No Action Alternative

Under the No Action Alternative, no effects on socioeconomics would occur. No effects would be expected on the regional economy or services. The proposed Aerospace Physiology Facility would not be constructed and therefore would not affect ROI business sales, income, or employment, nor would it change population, demand for housing, schooling, or emergency services.

4.8.2 Student Officer Quarters**Proposed Action**

The expenditures and employment associated with the proposed demolition of 21 officer quarters (Buildings 9200–9220) and constructing a new SOQ would be expected to increase ROI sales volume, employment, and income, as determined by the EIFS model (Table 4-2). The economic benefits would be for a short term, during the project period only. Such changes in sales volume, employment, and income would be within historical fluctuations (i.e., within the RTV ranges) and would be considered minor.

No effects on ROI population would be expected. The Proposed Action to construct a SOQ facility does not involve assigning new personnel from outside the region to Laughlin AFB. Under the Proposed Action, the new SOQ not significantly change the number of personnel living on or off base. Therefore, the population of personnel residing on-base would not change; however, these students are already assigned to Laughlin AFB and are part of the base's daytime population. Because they already reside in the ROI, no change in the ROI population would be expected.

Table 4-3. EIFS model output, Student Officers' Quarters

Variable	Projected total change	Percent change	RTV range
Sales (business) volume	\$18,685,000	2.59%	-9.19% to 6.95%
Income	\$3,587,359	0.58%	-9.06% to 7.19%
Employment	118	0.63%	-3.85% to 6.53%
Population	0	0.00%	-1.99% to 2.30%

Source: EIFS model

Long-term minor beneficial effects on housing would be expected. It is important to the Air Force to be able to accommodate personnel in quality, on-base housing conducive to students establishing good study habits and rest, relaxation, and personal well-being. Buildings 9200–9220 have been classified as inadequate and unserviceable. The Proposed Action would improve the quality of the on-base student housing and, therefore, the quality of life for the students residing in the facilities. Properly designed and furnished quarters providing some degree of individual privacy are essential to accomplishing the complicated and important training mission the students perform. The new student living quarters would each have a kitchenette, private bath, living area, private sleeping area and closet space, and parking space. A picnic pavilion would also be constructed on site.

No effects on education, health care, and emergency services would be expected. The proposed SOQ would not result in a change in demand for school enrollment or emergency services.

No Action Alternative

Long-term minor adverse effects on student housing and quality of life would be expected under the No Action Alternative. Buildings 9200-9220 are out of compliance with the Laughlin AFB Dormitory Master Plan. The No Action Alternative would perpetuate the deficiencies. Also, an insufficient number of on-base student housing units exist. Failure to provide adequate housing for students would hamper mission accomplishment at Laughlin AFB. Students might have to reside in off-base housing, which is not conducive to study, proper rest and relaxation, or building camaraderie, and would increase student commuting time and cost.

4.8.3 Small Arms Facility

Proposed Action

The expenditures and employment associated with the Proposed Action of demolishing the existing Small Arms Facility (Building 1100) and constructing a new one would be expected to increase ROI sales volume, employment, and income, as determined by the EIFS model (Table 4-3). The economic benefits would be for a short term, during the development period only. Such changes in sales volume, employment, and income would be within historical fluctuations (i.e., within the RTV ranges) and would be considered minor.

No effects on population would be expected. The Proposed Action to construct a Small Arms Facility does not involve assigning new personnel from outside the region to Laughlin AFB; therefore, this action would not change the population of Laughlin AFB or the ROI.

Table 4-4. EIFS model output, Small Arms Facility

Variable	Projected total change	Percent change	RTV range
Sales (business) volume	\$10,100,000	1.40%	-9.19% to 6.95%
Income	\$1,939,113	0.31%	-9.06% to 7.19%
Employment	64	0.34%	-3.85% to 6.53%
Population	0	0.00%	-1.99% to 2.30%

Source: EIFS model

No effects on housing, education, health care, and emergency services would be expected. The proposed Small Arms Facility would not result in a change in demand for housing, school enrollment, or emergency services.

Alternative A

Under Alternative A, the nature and overall effects on socioeconomics would be similar to those described for the Proposed Action.

No Action Alternative

Long-term minor adverse effects would be expected if the small arms range is not replaced. The range has outlived its useful life and requires constant maintenance to remain marginally operational. The configuration of the existing range and safety concerns limit the range's capacity for use in training and qualifying and could result in personnel having to travel to another AFB for training, increasing costs and a loss of labor hours.

4.8.4 Airfield Improvement Projects

Proposed Action

Short-term minor beneficial economic effects to the regional economy would be expected from implementing the Proposed Action. The expenditures and employment associated with the Proposed Action to expand and improve the stormwater drainage infrastructure in Laughlin AFB's Drainage Area 1 would be expected to increase ROI sales volume, employment, and income, as determined by EIFS (Table 4-4). The economic benefits would be for a short term, during the project period only. Such changes in sales volume, employment, and income would be within historical fluctuations (i.e., within the RTV ranges) and would be considered minor.

Table 4-5. EIFS model output, stormwater drainage infrastructure

Variable	Projected total change	Percent change	RTV range
Sales (business) volume	\$12,928,000	1.79%	-9.19% to 6.95%
Income	\$2,482,064	0.40%	-9.06% to 7.19%
Employment	81	0.44%	-3.85% to 6.53%
Population	0	0.00%	-1.99% to 2.30%

Source: EIFS model

No effects would be expected on population. The Proposed Action to expand and improve Laughlin AFB's stormwater drainage infrastructure would not change the population of Laughlin AFB or the ROI.

No effects on housing, education, health care, and emergency services would be expected. The proposed Airfield Improvement projects would not result in a change in demand for housing, school enrollment, or emergency services.

Alternative A

Under Alternative A, the nature and overall effects on socioeconomics from the airfield improvement projects on socioeconomics would be similar to those described for the Proposed Action.

Alternative B

Under Alternative B, the nature and overall effects on socioeconomics from the airfield improvement projects would be similar to those described for the Proposed Action.

No Action Alternative

Long-term moderate adverse effects would be expected if the stormwater drainage infrastructure is not repaired. The No Action Alternative would result in continued flooding of facilities in Drainage Area 1 and resultant water damage when heavy rains occur, which increases maintenance and repair costs. Additionally, flying hours would be lost thereby impacting training opportunities for students.

4.9 PROTECTION OF CHILDREN AND ENVIRONMENTAL JUSTICE

Potential effects on environmental justice and protection of children from a proposed action were determined by evaluating whether an action would result in disproportionate human health or environmental effects on minority or low-income populations, whether the proximity and risk of exposure to environmental hazards would be greater than that of the general population; whether environmental effects would appreciably exceed those effects on the general population; whether there would be unique exposure pathways to environmental hazards because of patterns of living of minority or low-income populations (e.g., subsistence fishing); the extent and quality of the existing physical infrastructure (e.g., housing, schools, transportation); whether the risk of adverse health effects (e.g., bodily impairment, infirmity, illness, or death) would be above generally accepted norms; whether the action would result in disproportionate environmental health or safety risks to children: a child's risk of exposure to an environmental hazard (through contact or ingestion) (EPA 2006); and the risk of potential substantial harm to the safety of children during construction activities, and multiple and cumulative effects (CEQ 1997; EPA 2010).

4.9.1 Aerospace Physiology Facility

Proposed Action

Implementing the Proposed Action to construct a new Aerospace Physiology Facility and demolish the existing Aerospace Physiology Facility would not be expected to result in disproportionate adverse environmental or health effects on low-income or minority populations.

Short-term, minor, adverse effects on the protection of children could occur. The proposed site is near areas where children are typically present, including residential housing areas. The demolition site is located near the Child Development Center (Facility 476) and Youth Center (Facility 390). Construction sites can be enticing to children and construction activity could pose an increased safety risk. Therefore, during construction, appropriate federal and state safety measures and health regulations would be followed to protect the health and safety of all residents. Safety measures, barriers (such as fences), and *no trespassing* signs would be placed around the perimeter of demolition and construction sites to deter children from playing in these areas, and construction vehicles and equipment would be secured when not in use. Such measures would reduce the risk of potential harm to children.

Alternative A

Under Alternative A, the nature and overall effects on environmental justice and protection of children would be similar to those described for the Proposed Action.

No Action Alternative

No effects would be expected. The No Action Alternative would not result in disproportionate adverse environmental or health effects on low-income or minority populations, or children. The No Action Alternative would not substantially affect populations covered by EO 12898 or 13405 by excluding persons, denying persons benefits, or subjecting persons to discrimination or disproportionate environmental or human health risks.

4.9.2 Student Officer Quarters

Proposed Action

The nature and overall effects of C&D on environmental justice and protection of children would be similar to those described for the Aerospace Physiology Facility. During construction, appropriate federal and state safety measures and health regulations would be followed to protect the health and safety of all residents. Safety measures, barriers, and *no trespassing* signs would be placed around the perimeter of construction sites to deter children from playing in these areas, and construction vehicles and equipment would be secured when not in use. Such measures would reduce the risk of potential harm to children.

Alternative A

Under Alternative A, the nature and overall effects on environmental justice and protection of children would be similar to those described for the Proposed Action.

No Action Alternative

No effects would be expected. The No Action Alternative would not result in disproportionate adverse environmental or health effects on low-income or minority populations, or children. The No Action Alternative would not substantially affect populations covered by EO 12898 or 13405 by excluding persons, denying persons benefits, or subjecting persons to discrimination or disproportionate environmental or human health risks.

4.9.3 Small Arms Facility

Proposed Action

Implementing the Proposed Action to construct a Small Arms Facility and demolish Building 1100 would not result in disproportionate adverse environmental or health effects on low-income or minority populations.

No effects would be expected on the protection of children. The Small Arms Facility would be away from the main base and away from on- and off-base housing areas. It would be fully contained, meeting all the safety requirements for surface and vertical danger zones and controls for lead accumulation. And it would have appropriate security detection.

Alternative A

Under Alternative A, the nature and overall effects on environmental justice and protection of children would be similar to those described for the Proposed Action.

No Action Alternative

No effects would be expected. The No Action Alternative would not result in disproportionate adverse environmental or health effects on low-income or minority populations, or children. The No Action Alternative would not substantially affect populations covered by EO 12898 or 13405 by excluding persons, denying persons benefits, or subjecting persons to discrimination or disproportionate environmental or human health risks.

4.9.4 Airfield Improvement Projects

Proposed Action

No effects would be expected. Implementing the Airfield Improvement projects would not result in disproportionate adverse environmental or health effects on low-income or minority populations, or children.

Alternative A

Under Alternative A, the nature and overall effects on environmental justice and protection of children would be similar to those described for the Proposed Action.

Alternative B

Under Alternative B, the nature and overall effects on environmental justice and protection of children would be similar to those described for the Proposed Action.

No Action Alternative

No effects would be expected. The No Action Alternative would not result in disproportionate adverse environmental or health effects on low-income or minority populations, or children. The No Action Alternative would not substantially affect populations covered by EO 12898 or 13405 by excluding persons, denying persons benefits, or subjecting persons to discrimination or disproportionate environmental or human health risks.

4.10 TRANSPORTATION

The criteria for determining the significance of effects on transportation are based on the extent that a proposed action would alter existing traffic patterns, increase the amount of traffic to a point where existing roadways cannot accommodate it, or substantially alter individuals' commute times.

4.10.1 Aerospace Physiology Facility

Proposed Action

Short-term minor adverse and long-term minor beneficial effects on traffic would be expected. Small, somewhat unnoticeable changes on the transportation system would be expected from relocating the Aerospace Physiology Facility. The changes would be primarily contributable to construction vehicles and small changes in localized traffic patterns. Traffic would be expected to increase because of additional vehicles near demolition and construction sites. These effects would be temporary and would end upon project completion. The roadway infrastructure would be sufficient to support the increased construction vehicle traffic.

No change in personnel or additional vehicle trips on-base would result from relocating the Aerospace Physiology Facility. Individuals accessing the proposed facility would use similar gates as currently used. The change the facility's location would, however, relocate existing on-base traffic of staff and visitors from Building 380 to areas near the existing Flight Simulator facility. The proposed site is four blocks closer to the North Gate than the existing site. In general, the location change would correspond to a small net decrease in the vehicle miles traveled on-base. The primary benefits would be expected at intersections along Laughlin Drive between Patterson Street and Liberty Avenue where traffic coming from North Gate would no longer have to travel to access the school. These beneficial effects would be

minor. The project is in the preliminary design stage. In the final design stages, the Air Force would ensure that adequate parking is provided.

Construction and operation of the Aerospace Physiology Facility would increase the overall walkability of the area in accordance with the Campus Center Area Development Plan. This would be the result of the new facility being located adjacent to the other training areas. Trips from the Campus Center to the existing facility along Laughlin Drive would be eliminated.

No change in personnel or additional vehicle trips to or from the base would be expected from relocating the Aerospace Physiology Facility. Individuals accessing the facility would use similar gates as currently used to access the existing facilities, and no change in off-base traffic would occur. These effects would be negligible.

Alternative A

Alternative A is on the same parcel as the proposed site, and the overall nature and levels of effects would be virtually identical to those outlined for the Proposed Action site. As with the proposed location and for similar reasons, demolition and construction activities would have short-term minor adverse effects. No additional vehicle trips on or off the base or at any gate would be expected from relocating the Aerospace Physiology Facility. Minor beneficial effects would be seen at intersections along Laughlin Drive between Patterson Street and Liberty Avenue where traffic coming from North Gate would no longer have to traverse to access the school. As a result, short-term minor adverse and long-term minor beneficial effects would be expected.

No Action Alternative

Under the No Action Alternative no effect on traffic and transportation resources would occur. No construction or demolition would occur, and no changes in operations would take place. Traffic and transportation conditions would remain as they are.

4.10.2 Student Officer Quarters

Proposed Action

Short-and long-term minor adverse effects would be expected. Short-term effects would be expected from construction-related traffic. Long-term effects would be expected from increases in on-base traffic from the increase in on-base lodging capacity.

The nature and overall levels of construction traffic would be similar to those outlined under the Aerospace Physiology Facility. However, construction traffic would be focused around the demolition site of the lodging and the construction site of the proposed SOQ. As with the Aerospace Physiology Facility and for similar reasons, such activities would have short-term minor adverse effects.

The construction of the new SOQ would reduce traffic to and from Buildings 9200–9220 by 275 vehicle trips per day, and increase traffic to and from the proposed site by 418 vehicle trips per day (ITE 2003). In general, the new housing would correspond to a small net increase in the miles traveled on-base. Vehicles accessing the proposed site would contribute to the congestion along Laughlin Drive during peak periods. Rerouting traffic away from the existing duplexes would have a minor beneficial effect on the intersection along Vandenberg Drive and Arnold Boulevard. Such effects would be minor, mainly because the total amount of traffic associated with the housing would be small.

Individuals accessing the proposed facility would use similar gates as currently used to access the existing lodging facilities. Traffic at any gate would not change substantially from relocating the on-base housing.

The project is in the preliminary design stage. In the final design stages, parking would be sized according to meet validated parking requirements. These effects would be expected to be minor.

No Action Alternative

Under the No Action Alternative no effect on traffic and transportation resources would occur. No construction or demolition would occur, and no changes in operations would take place. Traffic and transportation conditions would remain as they are.

4.10.3 Small Arms Facility

Proposed Action

The nature and overall levels of construction traffic would be similar to those outlined under the Aerospace Physiology Facility. However, construction traffic would be focused around the demolition site of the existing facility and the construction site of the proposed Small Arms Facility. As with the Aerospace Physiology Facility and for similar reasons, such activities would be expected to have short-term minor adverse effects. The proposed site is on a parcel adjacent to the existing site, and no appreciable changes would be expected in traffic patterns on- or off-base. C&D activities would have short-term minor adverse effects; however, they would be in the vicinity of the proposed location. No change in personnel or additional vehicle trips on the base would occur from relocating the Small Arms Facility. Individuals accessing the proposed facility would use similar gates as currently used.

No change in personnel or additional vehicle trips to or from the base would be expected from relocating the Small Arms Facility. Individuals accessing the facility would use similar gates as currently used to access the existing range, and no change would occur in off-base traffic. These effects would be negligible.

Alternative A

The alternate location would relocate existing, on-base traffic of trainees and staff from Building 1100 to areas near the proposed site. The Alternative A site is adjacent to the West Gate, and the change in location would correspond to a small net decrease in the vehicle miles traveled on base. The primary benefits would be expected at intersections along Liberty Avenue between Mitchell Boulevard and Indiana Avenue where traffic coming from North Gate would no longer have to travel to access the range. These beneficial effects would be minor. The project is in the preliminary design stage. In the final design stages, parking would be designed to meet validated requirements.

No Action Alternative

Under the No Action Alternative no effect on traffic and transportation resources would occur. No construction or demolition would occur, and no changes in operations would take place. Traffic and transportation conditions would remain as they are.

4.10.4 Airfield Improvement Projects

Proposed Action

Although the nature of construction traffic would be similar, the levels of construction traffic would be expected to be appreciably more than those outlined under the Aerospace Physiology Facility. Construction traffic would be focused around the stormwater infrastructure construction sites. Although the intensity of construction traffic would be greater than that outlined under the Aerospace Physiology Facility, these effects would be temporary and would end with the project. These effects would be minor.

No change in personnel or additional vehicle trips to or from the base would be expected from implementing the stormwater infrastructure projects. No effects on air, rail, or public transportation would result.

Alternative A

Under Alternative A, the nature and overall effects on transportation would be similar to those described for the Proposed Action.

Alternative B

Under Alternative B, the nature and overall effects on transportation would be similar to those described for the Proposed Action.

No Action Alternative

The No Action Alternative would result in no effects on traffic and transportation resources. No construction would occur, and no changes in operations would take place. Traffic and transportation conditions would remain as they are.

4.11 UTILITIES AND INFRASTRUCTURE

Potential effects on utilities and infrastructure from a proposed action were determined by evaluating the degree to which a utility service provider would have to alter its operating practices and personnel requirements and the degree to which the change in demands from implementing the Proposed Action and alternatives would affect the system's capacity. The Proposed Action would be expected to result in an overall decrease of 30,353 SF (26 percent) of occupied facility space associated with the proposed construction projects. New Air Force facilities are required to be Leadership in Energy and Environmental Design (LEED) certified "silver." The certification means that new buildings would incorporate sustainable practices into the construction and operation. It is expected that these efficiencies would result in an overall decrease in utility demand.

4.11.1 Aerospace Physiology Facility

Proposed Action

Long-term beneficial effects would be expected. No increase in the number of individuals working at the Aerospace Physiology Facility would result. Using energy and water saving features in the new facility would reduce utility demand.

Alternative A

Long-term beneficial effects would be expected. Alternative A would result in potential shared administrative space between the Aerospace Physiology Facility and the Flight Simulator Facility. Effects would be similar to those under the Proposed Action.

No Action Alternative

Under the No Action Alternative, no effects on utilities and infrastructure would result. Current utility demands would continue.

4.11.2 Student Officer Quarters

Proposed Action

There would be a small decrease in the amount of personnel housed in the SOQ as a result of implementation of the Proposed Action. Therefore, no negative effect would be expected on the potable water system. A 59 percent decrease in square footage would result from complying with new construction standards, and installing water-saving features would reduce the overall water demand for the new facility.

No Action Alternative

Under the No Action Alternative, no effects on utilities and infrastructure would occur. Current utility demands would continue.

4.11.3 Small Arms Facility

Proposed Action

Implementing the Proposed Action would be expected to result in a 172 percent increase in square footage; however, no additional personnel would be employed or housed at Laughlin AFB. Therefore, no effect on the potable water system to support these personnel would result. Using energy and water saving features in the new facility would reduce utility demand at the new facility, resulting in long-term beneficial effects.

Alternative A

The effects associated with constructing the Small Arms Facility at an alternate location, near the current facility would be the same or very similar to those described under the Proposed Action.

No Action Alternative

Under the No Action Alternative, no effects on utilities and infrastructure would be expected. Current utility demands would continue.

4.11.4 Airfield Improvement Projects

Proposed Action

The airfield improvement projects would involve relocating several utilities during grading and trenching. That could result in some sporadic utility outages at buildings. The outages would be coordinated to reduce the effects on day-to-day operations. The effects would be negligible and would end with the project's completion. No increase in utility demands would be expected.

Alternative A

Under Alternative A, the nature and overall effects on utilities and infrastructure would be similar to those described for the Proposed Action.

Alternative B

Under Alternative B, no effects on utilities and infrastructure would occur. Airfield improvements at the end of the runway would not create or reduce demand on utilities on the installation.

No Action Alternative

Under the No Action Alternative, no effects on utilities and infrastructure would result. Current utility demands would continue.

4.12 HAZARDOUS MATERIALS AND WASTE MANAGEMENT

Potential effects from hazardous materials and waste management were assessed according to the potential of the action to generate hazardous waste types or quantities that cannot be accommodated by current processes or the potential for an uncontrolled release of hazardous materials or wastes to the environment. Additionally, the likelihood that the action could substantially increase the acquisition, use, and exposure to workers of hazardous materials was considered. Effects could result if nonhazardous regulated or hazardous substances were collected, stored or disposed of improperly. Adverse effects would also be expected if the volume of non-regulated waste material exceeded the current management capacity of the City of Del Rio Municipal Landfill.

4.12.1 Aerospace Physiology Facility

Proposed Action

The use of hazardous materials during C&D activities would be limited to vehicle maintenance (fuel, oils, and lubricants) activities, and construction materials (e.g., adhesives, sealants). Such materials would be required to be properly contained, manifested, and managed in accordance with all federal, state, and local regulations, AFIs, and DoD directives. Authorization from the Laughlin AFB Environmental Element would need to be acquired before use of hazardous materials.

ACM could be in the building because of when it was built. The guidelines present in the Laughlin AFB *Asbestos Management Plan* would be followed to abate all ACM from the building before demolition activities. A positive long-term positive effect would be expected because of demolition activities removing the ACM present. No ACM would be used in constructing any new facilities.

Due to the age of the facility, it is assumed that LBP is present. Procedures stated in the *Laughlin AFB LBP Management Plan* would be followed to properly test and manage facilities that have been found to contain LBP. Areas where LBP has been abated or not found should still be regarded as possibly containing LBP. LBP might be in the soils surrounding the facility. If it is necessary to remove soils for off-site disposal, a limited number of random samples would be collected to assess the presence or absence of lead in soil, and to properly categorize the soil for hazardous constituents per applicable state and federal regulations for disposal off-site. Long-term effects of this alternative would be beneficial as a result of the removal of LBP and LBP contaminated soils.

Laughlin AFB pest management applies commercially available pesticides. Base records indicate the historical application of several pesticides that are no longer approved for use. Although these pesticides were used in accordance with manufacturers' guidance and directions, the potential exists for residual concentrations in the soil underlying on-base facilities. If it is necessary to remove soils for off-site disposal, a limited number of random samples would be collected to assess the presence or absence of pesticides in soil, and to properly categorize the soil for hazardous constituents per applicable state and federal regulations for disposal off-site. Long-term effects of the Proposed Action would be beneficial as a result of the removal of pesticide-contaminated soils, if contaminated soils are found.

No additional regulated wastes would be generated on Laughlin AFB. During demolition activities, any ACM and LBP-containing materials removed would be managed in accordance with established installation management plans and state and federal regulations. LBP materials would qualify for household hazardous waste exemption and would be treated as C&D wastes. No adverse short- or long-

term effects of these activities were identified. Beneficial effects would include the proper disposal of abated LBP, ACM, and LBP or pesticide-contaminated soils, decreasing potential human contact with those materials.

C&D would result in a temporary increase in solid waste generated at Laughlin AFB. It is estimated that approximately 843⁴ tons of C&D waste would be generated from demolition activities, and 23.4 tons of C&D waste would be generated from the construction of the new facility (USEPA 2003). This activity would be expected to generate approximately 866.4 tons of C&D waste.

The generation of C&D waste would result in a 1.4 percent increase of solid waste disposed of at the landfill. That is a conservative estimate because the range does not account for any materials that would be recycled. Short-term minor increases would be expected. Because the City of Del Rio Municipal Landfill has a remaining life expectancy of 7 years, it has the capacity to handle the short-term increase in solid waste.

No ERP sites, AOCs, or MMRP sites are in or adjacent to the current facility or the area of the proposed new facility. No effects would be expected on these sites from implementing the Proposed Action.

Alternative A

Under Alternative A, the nature and overall effects of hazardous materials and waste management would be the same as those described for the Proposed Action.

No Action Alternative

No effects from hazardous materials, wastes, or ERP sites would be expected from the No Action Alternative. Buildings with potential ACM and LBP would continue to be managed as they now are. Exposure of workers to ACM and LBP would remain a possibility.

4.12.2 Student Officer Quarters

Proposed Action

Short-term minor adverse and long-term beneficial effects would be expected. The nature and overall effects of hazardous materials and waste management would be similar to that described for the Aerospace Physiology Facility. Results from the 1995 and 2001 ACM surveys indicate that ACM is present in the facilities to be demolished.

C&D activities associated with the Proposed Action would be expected to increase the solid waste generated at Laughlin AFB. It is estimated that 5,776.1 tons of C&D waste would be generated from the demolition activities, and 81.1 tons of C&D waste would be generated from the construction of the new facility. Approximately 5,857.2 tons of C&D waste would be generated. The City of Del Rio Landfill has the capacity to handle the short-term increase in solid waste.

No ERP sites, AOCs, or MMRP sites are in or adjacent to the current facility or the proposed area of the new facility. No effects would be expected on these sites from the Proposed Action.

⁴ Estimated nonresidential and residential construction debris rates, as reported in the *Estimating 2003 – Building Related Construction and Demolition Materials Amounts*. The ratios are 158 lbs/SF for nonresidential demolition, 127 lbs/SF for residential demolition, and 4.34 lbs/SF for nonresidential construction. The demolition debris rates include concrete slabs.

No Action Alternative

No effects from hazardous materials, wastes, or ERP sites would be expected from the No Action Alternative. Buildings with potential ACM and LBP would continue to be managed as they now are. Exposure of workers to ACM and LBP would remain a possibility.

4.12.3 Small Arms Facility

Proposed Action

The nature and overall effects of hazardous materials and waste management would be similar to those described for the Aerospace Physiology Facility. The facility was constructed in 1982, and because of its age, ACM could be present.

Because the facility was constructed in 1982, it is assumed that LBP is not present. No effects from LBP by C&D activities would be expected.

C&D activities associated with this activity would be expected to increase the solid waste generated at Laughlin AFB. It is estimated that approximately 1,061.2 tons of C&D waste would be generated from demolition activities, and 79.3 tons of C&D waste would be generated from constructing the new facility. The Proposed Action would be expected to generate approximately 1,140.5 tons of C&D waste. The City of Del Rio landfill has the capacity to handle the short-term increase in solid waste.

No ERP sites, AOCs, or MMRP sites are located at or adjacent to the current facility or the proposed area of the new facility, therefore no disturbances would occur. No effects would be expected on these sites from the Proposed Action. The potential effects on ERP and MMRP sites would not be significant.

Alternative A

Under Alternative A, the nature and overall effects of hazardous materials and waste management would be similar to those described for the Proposed Action.

An MMRP (SR002) site is near the Alternative A location to the northwest. Despite its proximity to the proposed site, the MMRP site would not be disturbed. Measures would be taken to ensure that the site is identified prior to construction activities. If affected soils or groundwater are encountered, work would immediately cease and the installation environmental flight would be contacted. The extent of the contamination would be determined and additional preventive measures would be implemented prior to resuming construction activities.

No Action Alternative

No effects from hazardous materials, wastes, or ERP sites would be expected from implementing the No Action Alternative. Building 1100, with potential ACM would continue to be managed as it now is. Exposure of workers to ACM would remain a possibility.

4.12.4 Airfield Improvement Projects

Installing reinforced-concrete pipe and box culverts would not require hazardous materials to be used on Laughlin AFB, with the exception of the fuels, oils, and lubricants to be used on construction equipment. Facilities would not be affected, so ACM or LBP would not be encountered or require management.

No additional regulated wastes would be generated on Laughlin AFB. Moving soil and installing infrastructure would not affect ACM and LBP. Soils that could be affected with pesticides are not

1 expected to be disturbed; however, if they are discovered, the soils would be returned to where they were
2 removed.

3 C&D wastes would be generated from removing and replacing sidewalks and roads. The quantity of
4 C&D waste would depend on the actual amount of sidewalk and roadways that would be replaced. These
5 wastes could be recycled with minimal sorting. With recycling of the wastes and removing only materials
6 that are required, the waste generated would create a short-term, minor increase. The City of Del Rio
7 landfill has the capacity to handle the short-term increase in solid waste.

8 Three open ERP sites (SS14, ST03, and FT05) and three closed ERP sites are in the immediate vicinity of
9 the Proposed Action site. The Proposed Action would directly disturb two of the closed sites. One site, a
10 drainage ditch that runs parallel to Barnes Street, is of particular concern. The site was a conduit for
11 industrial rinse waters contaminated with heavy metals and solvents. There are soil and groundwater
12 restrictions associated with this site. Because of this, certain precautions would be taken when disturbing
13 soils. Any soils that are disturbed would be backfilled and stabilized at the site and not transported to be
14 used as fill at other locations on base.

15 When removing soils, sidewalks, and roadways at other areas of the Proposed Action, workers would
16 ensure that activities are not conducted within areas affected by the sites. However, if these activities
17 result in contact with contaminated soils or groundwater, the Air Force or its contractors would ensure
18 that human health is protected by immediately ceasing work and contacting the installation environmental
19 flight. The extent of the contamination would be determined and additional preventive measures would
20 be implemented prior to resuming construction activities.

21 ***Alternative A***

22 Under Alternative A, the nature and overall effects of hazardous materials and waste management would
23 be similar to those described for the Proposed Action.

24 ***Alternative B***

25 Under Alternative B, the nature and overall effects of hazardous materials and waste management would
26 be similar to those described for the Proposed Action. However, no ERP, AOC, or MMRP sites are in
27 vicinity of the slope corrections and drainage culvert diversion.

28 ***No Action Alternative***

29 No effects from hazardous materials, wastes, or ERP sites would be expected under the No Action
30 Alternative. No ground disturbance activities would occur.

5.0 CUMULATIVE EFFECTS

This section provides an analysis of the cumulative effects that could result from implementing the Proposed Action(s) and alternatives. To assess the extent that the Proposed Action and alternatives could be affected by or affect other activities, the environmental consequences discussed in Section 4 were compared against actions (even incremental actions) that have occurred in the past, present, and reasonably foreseeable future regardless of what agency or individual has undertaken them. Generally, actions occurring at a similar location or during a similar period would have more potential for cumulative effects. Significant effects are evaluated by comparing those actions to the Proposed Action and determining whether the combined effects would result in exceeding significance thresholds outlined in Section 4.

5.1 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

The installation has undergone a program to renovate existing facilities and demolish others to create better efficiencies, extend facility life, and reduce the installations facility footprint. Recent demolition has included four temporary lodging facilities (Facilities 460-463) and the Base Theater (Facility 359). Additionally, Building 253 (the former dining hall) was recently renovated and reopened as the base enlisted club. Building 380 (Aerospace Physiology) has also been recently renovated. Future projects include upgrades to the main and west gates, and an addition to communications complex. New construction projects, including the Proposed Actions described in this EA, are programmed with new construction square footage offset by additional demolition. This would help the installation meet its mission requirements while not growing its facility footprint.

5.2 CUMULATIVE EFFECTS

On the basis of a comparison of past actions, current activity, and planned construction, no adverse cumulative effects would be expected on environmental resources. For this EA, cumulative effects also mean analysis of the Proposed Actions described in this document. This section analyzes the cumulative effects of the Proposed Action and other past, present, and reasonably foreseeable future actions. When combined with the expected reduction in impervious surfaces, facility footprint, and reduced utility demand long-term beneficial effects on the environment would be expected. Additionally, potential exposure to toxics such as ACM and LBP would be reduced, and an increase in open space would be expected. These are overall beneficial effects.

5.2.1 Land Use

The proposed actions to construct new facilities and make infrastructure improvements on Laughlin AFB would not individually or combined with other actions result in adverse land use effects either on the installation or with adjacent off base land uses. The expected result would be more compatible land use interactions, and beneficial cumulative effects would be expected.

5.2.2 Air Quality

Since Laughlin AFB is not in a non-conforming region, the significance threshold for any criteria pollutant is 100 tons per year (tpy). As shown in Table 4, the largest pollutant emitted is NO_x at 20.06 tpy followed by CO at 17.81 tpy, well below the 100 tpy threshold. The total GHG emissions of 2,380.24 MTCO₂e from the proposed action are insignificant compared to the 25,000 MTCO₂e threshold. The largest source of these emissions is construction equipment burning diesel fuel. In order to further reduce these emissions during the demolition and construction phases, truck and equipment idling would be minimized. In order to minimize fugitive PM emissions during demolition and construction, exposed

1 areas would be watered daily, paved roads would be regularly maintained by a street sweeper, and soil
2 stabilizer would be used for unpaved roads.

3 It is assumed that the demolition projects would be accomplished over a period of 60 working days,
4 construction projects 1 year, and the stormwater project 6 months. The emissions would be emitted over
5 1.5 years or less (assuming that construction and demolition are not scheduled concurrently) and there
6 would only be minimal emissions from the buildings after initial demolition and construction mainly from
7 emergency generator and boiler use.

8 Proposed projects on Laughlin AFB and those that have occurred in the past have not had a cumulative
9 adverse effect on air quality in Val Verde County. Reasonably foreseeable future C&D projects would
10 have only a short-term effect on particulate matter and GHG emissions, but they would not have any
11 long-term effects. The reduction in facility space would reduce the size of the boilers required to heat the
12 buildings and thus the emissions generated from them. The proposed projects would reduce operational
13 emissions long-term compared to the status quo due to the more efficient nature of the construction.
14 Regional cooling requirements place a heavy demand on power supplies and increase the potential for
15 emissions of GHGs. However, the proposed projects would be constructed to LEED Silver standards
16 which would reduce electrical demand below what is currently being consumed. The criteria pollutants
17 emitted during the demolition and construction phases of the proposed action would have a short-term
18 effect on local and regional air quality. The GHGs emitted during the proposed action would have a
19 small impact on a regional and global scale.

20 **5.2.3 Noise**

21 Short-term increases in noise would result from using heavy equipment at the C&D sites. This increase
22 would be temporary and would not extend to the nearest populated areas to the northwest of the
23 installation. Long-term minor effects would be expected from relocating the Aerospace Physiology
24 Facility to noise zone II. A minor beneficial effect would be expected from completely enclosing the
25 training activities at the proposed Small Arms Facility.

26 **5.2.4 Geology and Soils**

27 C&D projects often clear the ground of bushes, trees, and other types of vegetation. Long-term exposure
28 of the underlying soils could result in large-scale erosion at the project site. Projects on Laughlin AFB use
29 a variety of techniques to prevent this from happening. Sites are graded, stabilized, and revegetated
30 promptly after a project. During the project period, workers would implement measures such as covering
31 piles and installing silt fences, to minimize the potential of sediment leaving the project site and
32 subsequently the installation. With continued adherence to these practices, no significant cumulative
33 effects would be expected.

34 **5.2.5 Water Resources**

35 The cumulative effect of past development at Laughlin AFB has been an increase in stormwater runoff
36 because of increased impervious surface. The existing stormwater infrastructure does not have adequate
37 capacity in some areas to accommodate the increased runoff. Efforts to control stormwater generally
38 have focused on maintaining predevelopment historic rates of release. This method of control mitigates
39 stream degradation such as stormwater volume, erosion, and sediment deposition. Proposed stormwater
40 infrastructure upgrade projects are designed to reduce these effects. With the proposed upgrades and the
41 continuation of appropriate site-specific stormwater control BMPs, no significant cumulative effects
42 would be expected either at the project site or off base receiving waters.

5.2.6 Biological Resources

Development at Laughlin AFB has contributed to the reduction of habitat for animals compared to pre-development conditions. This has been an ongoing cumulative effect that has resulted in fragmented wildlife corridors and marginal habitat in some areas. The ability to mitigate those effects is beyond the scope of this EA. Future projects planned for the installation would not contribute to this. The net result of current and planned development would be an increase in open space and opportunities for habitat enhancement. Vegetation would be reestablished in some areas. Therefore, the cumulative effects of the Proposed Action on biological resources would not be considered significant.

5.2.7 Cultural Resources

No NRHP-eligible structures, landmarks, or districts have been identified on Laughlin AFB. Therefore, demolition would have no effect on architectural resources. Previous renovations have altered some potentially eligible buildings to the point that they are not considered eligible. While no existing buildings are eligible for inclusion on the NRHP, several buildings associated with the Cold War Era have been recommended for reevaluation once they reach 50 years old (Laughlin AFB 2011e). No future projects are expected to affect NRHP-eligible archaeological sites. If a project is constructed in the area of an eligible site, an archaeologist would supervise the work, and the area would be fenced off and disturbance avoided.

5.2.8 Socioeconomics

The combined expenditures associated with the four proposed actions and other past and future projects would be expected to increase ROI sales volume, employment, and income. Such changes in sales volume, employment, and income would be within historical fluctuations and would be considered minor. No cumulative effects would be expected on population. The Proposed Action would not involve assigning new personnel from outside the region to Laughlin AFB; therefore, implementing the actions would not result in a cumulative change in Laughlin AFB or the ROI population. The combined actions would not result in a significant change in supply or demand for housing, increase in school enrollment, or need for increased emergency services.

5.2.9 Environmental Justice and Protection of Children

Concentrated areas of low-income, minority, or disadvantaged residents are not close to Laughlin AFB and have not been adversely affected by previous actions on the installation. The proposed projects and expected future projects would not adversely affect these populations. C&D sites might be near areas frequented by children and can be enticing. Project sites would be properly secured against unauthorized entry. With these measures no significant cumulative effects would occur.

5.2.10 Transportation

C&D activities generate additional construction-related traffic during project duration. These effects would be expected to be minor and temporary. An increase in the amount of personnel housed on-base would result in long-term effects related to traffic volume. These changes in traffic patterns would be small, and have relatively unnoticeable effects on intersections throughout the installation.

5.2.11 Utilities and Infrastructure

The continued demolition of older, inefficient facilities and the construction of new facilities built with modern techniques and equipment has resulted in a decrease in total utility demand basewide. This would be expected to continue with the construction of the proposed projects. Current levels of personnel

1 residing and working on base would be maintained. No increases to wastewater discharges, drinking
2 water, electricity demand, natural gas, or other utilities would occur. Existing utility infrastructure on and
3 off base is sufficient to meet current and projected needs.

4 **5.2.12 Hazardous Materials and Waste Management**

5 Buildings constructed from the 1950s through the 1970s present a threat to occupants because of the
6 potential presence of toxics like ACM and LBP. This is not true of buildings constructed after 1980
7 because the use of these substances has been banned. By demolishing older buildings, the potential
8 exposure of personnel to toxics is substantially reduced. The use of hazardous materials and generation
9 of hazardous wastes is more related to the types of uses in buildings rather than the type of building
10 constructed, though they are not entirely distinct. However, the base has procedures in place to manage
11 the use and disposal of hazardous materials and wastes. Therefore, cumulative effects on toxics,
12 hazardous materials, and hazardous waste would not be likely.

6.0 REFERENCES

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7.0 ABBREVIATIONS AND ACRONYMS

AADT	annual average daily traffic
AC	alternating current
ACM	asbestos containing materials
AcB	Acuna silty clay
ADP	area development plan
AFB	Air Force Base
AETC	Air Education and Training Command
AFI	Air Force Instruction
AFH	Air Force Handbook
AICUZ	Air Installation Compatible Use Zone
AOC	area of concern
AQCR	Air Quality Control Region
BCE	Base Civil Engineer
BMP	best management practices
C&D	construction and demolition
CAA	Clean Air Act
CAR	Climate Action Registry
CATM	Combat Arms, Training, and Maintenance
CEQ	Council on Environmental Quality
CERCLA	<i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i>
CFR	Code of Federal Regulations
cfs	cubic feet per second
CH ₄	methane
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalents
CRM	Cultural Resources Management
CWA	Clean Water Act
CY	cubic yards
dB	decibel
dBA	A-weighted decibel
DC	direct current
DERP	Defense Environmental Restoration Program
DMM	discarded military munitions
DNL	day-night average noise level
DoD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIFS	Economic Impact Forecast System
EIS	Environmental Impact Statement
EMI	electromagnetic interference
EO	Executive Order
EPACT	Energy Policy Act of 2005
EPCRA	Emergency Planning and Community Right-to-Know Act

ERP	Environmental Restoration Program
ESA	Endangered Species Act
ETL	engineering technical letter
°F	Fahrenheit
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FOD	foreign object debris
FONPA	Finding of No Practical Alternative
FONSI	Finding Of No Significant Impact
FTW	Flying Training Wing
GHG	greenhouse gases
GHz	gigahertz
GWP	global warming potential
H2	cycles per second
Hz	Hertz
Hazmat	hazardous materials
HVAC	heating, ventilation, and air-conditioning
ICRMP	Integrated Cultural Resources Management Plan
IEEE	Institute of Electrical and Electronics Engineers
ILS	Instrument Landing System
INRMP	Integrated Natural Resources Management Plan
IPCC	Intergovernmental Panel for Climate Change
ISW	industrial solid waste
kHz	kilohertz
kVA	kilovolts amperes
kWh	kilowatt hours
LBP	lead based paint
LEED	Leadership in Energy and Environmental Design
MC	munitions constituents
MHz	megahertz
MMRP	Military Munitions Response Program
MSDS	material safety data sheets
MSSR	monopulse secondary surveillance radar
MSW	municipal solid waste
MVA	megavolt amperes
MW	megawatt
MWh	megawatt hours
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEC	National Electric Code
NEI	National Emission Inventory
NEPA	National Environmental Policy Act

NFPA	National Fire Protection Association
NM	nautical mile
NO ₂	nitrogen dioxide
NO _x	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NREL	National Renewable Energy Laboratory
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O ₃	ozone
OSHA	Occupational Safety and Health Administration
Pb	lead
PCPI	per capita personal income
PL	Public Law
PM _{2.5}	particulate matter less than 2.5 microns in diameter
PM ₁₀	particulate matter less than 10 microns in diameter
POL	petroleum, oils, and lubricants
PPE	personal protective equipment
ppm	parts per million
PSD	prevention of significant deterioration
PSI	pounds per square inch
PSR	primary surveillance radar
PTW	Pilot Training Wing
PV	photovoltaic
RCRA	Resource Conservation and Recovery Act
REC	renewable energy credits
RFI	radio frequency interference
ROI	region of interest
RTV	rational threshold value
SDZ	Surface Danger Zone
SF	square feet
SHPO	State Historic Preservation Officer
SIP	state implementation plan
SO ₂	sulfur dioxide
SOQ	student officers' quarters
SUPT	Specialized Undergraduate Pilot Training
SWPPP	Storm Water Pollution Prevention Plan
TCP	Traditional Cultural Properties
TCEQ	Texas Council on Environmental Quality
THz	terahertz
tpy	tons per year
TPWD	Texas Parks and Wildlife Department
TSCA	Toxic Substance Control Act
UFC	Unified Facilities Criteria
UPS	uninterrupted power supply

U.S.	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Service
UXO	unexploded ordnance
V	volts
VOC	volatile organic compounds
ZaC	Zapata-Vinegarroon complex

APPENDIX A - DETAILED EMISSIONS CALCULATIONS

Calculation Methodology

The California Emission Estimator Model (CalEEMod) was used to estimate the emissions from the proposed project. CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state, to quantify criteria pollutant and GHG emissions associated with the construction and operational activities from a variety of land use projects, such as residential and commercial facilities. The model analyzes at the air district, county, air basin or statewide level. The features and benefits of CalEEMod include the following:

- Includes 63 subcategories of land uses, some new such as refrigerated warehouses, golf courses, swimming pools, parking lots and parking structures;
- Uses construction profile from the latest construction survey from South Coast Air Quality Management District;
- Modifies methods for calculating fugitive dust from grading and site preparation;
- Allows user to select different vehicle classes for construction worker, vendor, and hauling trips;
- Updates methodology to calculate emissions from landscaping equipment at nonresidential land uses;
- Uses the BURDEN mode in CARB's EMFAC model to provide more accurate regional characteristics (fleet mix, vehicle miles traveled, temperature, etc.);
- Uses weighted average trip rates to reflect accurate vehicle activity from a specific land use type;
- Updates default warehouse trip rates;
- Includes the usage of consumer products at non-residential facilities includes the three combustion GHG pollutants: carbon dioxide, methane and nitrous oxide;
- Calculates indirect GHG emissions from energy use, water/wastewater conveyance, wastewater treatment, solid waste disposal, and vegetation planting and/or removal;
- Calculates benefits from implementing mitigation measures; and
- Provides ability to import data from off-model spreadsheets for large projects (e.g., multiple land uses, on-road emission factors, construction equipment list, construction schedule, etc.).

CalEEMod was developed using a construction survey to determine the construction profile (equipment type, number of equipment, hours of activity, etc.) for each construction phase. When changing the construction schedule, the model does not automatically change the default construction equipment type. The equipment type dictates construction phase activity, such as acres graded per day. Fugitive dust is

generated when material (e.g., from demolition objects) and soil (e.g., from site preparation and grading) are transported to and from the site.

For non-residential land uses, the default lot acreage value corresponds to the building footprint. The lot acreage is used to calculate grading values. Therefore, any additional graded area must be entered separately as “other paved surfaces” or other land use to ensure an accurate grading calculation. For residential land uses, the default lot acreage value is greater than the default square footage value because the values are derived from different sources. The default lot acreage per residential dwelling unit is from the ITE Trip Generation and the square footage per dwelling unit is from the California Energy Commission’s Residential Appliance Saturation Survey (RASS). Thus, the lot acreage includes building footprint, paved areas and undeveloped areas, so no additional grading area need to be entered separately. Construction activity also involves on-road mobile source emissions from vehicles driven to and from the construction site by workers, vendors (e.g., water trucks, product deliveries, etc.), and haulers. In addition, fugitive dust is generated by these vehicles. Finally, volatile organic compound (VOC) emissions are generated when the interior and exterior surface walls of the structures are painted.

In order to obtain the CO₂e, an individual GHG is multiplied by its global warming potential (GWP). The GWP designates on a pound for pound basis the potency of the GHG compared to CO₂. The program would use GWP from the IPCC Second Assessment Report (SAR). GWPs from the SAR were selected instead of more recent GWPs since it is the basis used in regulations and international protocols at this time (e.g., California and Federal GHG Reporting Programs, The Climate Registry).

DETAILED AIR CALCULATIONS

The following tables show the detailed criteria and GHG emissions by project and phase based on CalEEMod.

Table 1
Aerospace Physiology Facility Criteria and GHG Emissions

	ROG	NO _x	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	CO ₂	CH ₄	N ₂ O	CO _{2e}
Category	tons/yr										MT/yr			
Demolition	0.17	1.30	0.77	0.00	0.00	0.08	0.08	0.00	0.08	0.08	107.38	0.01	0.00	107.67
Site Preparation	0.04	0.36	0.20	0.00	0.05	0.02	0.07	0.03	0.02	0.05	29.51	0.00	0.00	29.58
Grading	0.04	0.30	0.17	0.00	0.05	0.02	0.07	0.02	0.02	0.04	24.40	0.00	0.00	24.46
Construction	0.54	2.63	1.71	0.00	0.00	0.19	0.19	0.00	0.19	0.19	232.32	0.04	0.00	233.23
Paving	0.03	0.21	0.12	0.00	0.00	0.02	0.02	0.00	0.02	0.02	15.53	0.00	0.00	15.59
Architectural Coating	0.13	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	0.00	0.00	2.56
Mobile Sources	0.23	0.67	2.26	0.00	0.24	0.02	0.26	0.00	0.02	0.03	255.39	0.02	0.00	255.71
Total	1.18	5.50	5.25	0.00	0.34	0.35	0.69	0.05	0.35	0.41	667.08	0.07	0.00	668.80

Table 2
Aerospace Physiology Alternative Facility Criteria and GHG Emissions

	ROG	NO _x	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	CO ₂	CH ₄	N ₂ O	CO _{2e}
Category	tons/yr										MT/yr			
Demolition	0.07	0.48	0.30	0.00	0.00	0.04	0.04	0.00	0.04	0.04	40.16	0.01	0.00	40.28
Site Preparation	0.02	0.14	0.09	0.00	0.00	0.01	0.01	0.01	0.01	0.01	12.72	0.00	0.00	12.76
Grading	0.02	0.16	0.10	0.00	0.01	0.01	0.02	0.00	0.01	0.01	13.39	0.00	0.00	13.43
Construction	0.13	0.96	0.55	0.00	0.00	0.07	0.07	0.00	0.07	0.07	88.22	0.01	0.00	88.44

Paving	0.03	0.16	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	12.77	0.00	0.00	12.82
Architectural Coating	0.11	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	0.00	0.00	2.56
Mobile Sources	0.23	0.67	2.26	0.00	0.24	0.02	0.26	0.00	0.02	0.03	255.39	0.02	0.00	255.71
Total	0.61	2.60	3.42	0.00	0.25	0.16	0.41	0.01	0.16	0.17	425.20	0.04	0.00	426.00

Table 3
Student Officers Quarters Criteria and GHG Emissions

	ROG	NO _x	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	CO ₂	CH ₄	N ₂ O	CO ₂ e
Category	tons/yr										MT/yr			
Demolition	0.30	2.40	1.38	0.00	0.04	0.12	0.16	0.01	0.12	0.13	204.36	0.02	0.00	204.86
Site Preparation	0.11	0.90	0.50	0.00	0.18	0.05	0.23	0.10	0.05	0.15	72.53	0.01	0.00	72.72
Grading	0.07	0.55	0.33	0.00	0.06	0.03	0.09	0.03	0.03	0.06	47.52	0.01	0.00	47.65
Construction	0.61	4.02	2.40	0.00	0.00	0.28	0.28	0.00	0.28	0.28	366.46	0.05	0.00	367.50
Paving	0.05	0.28	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	21.77	0.00	0.00	21.85
Architectural Coating	0.59	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	0.00	0.00	2.56
Mobile Sources	0.37	1.09	3.64	0.00	0.40	0.04	0.43	0.01	0.03	0.04	422.03	0.02	0.00	422.55
Total	2.10	9.27	8.44	0.00	0.68	0.54	1.21	0.15	0.53	0.68	1,137.22	0.11	0.00	1,139.69

Table 4
Small-Arms Facility Criteria and GHG Emissions

	ROG	NO _x	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	CO ₂	CH ₄	N ₂ O	CO ₂ e
Category	tons/yr										MT/yr			
Demolition	0.07	0.48	0.30	0.00	0.01	0.04	0.05	0.00	0.04	0.04	40.16	0.01	0.00	40.28

Site Preparation	0.02	0.14	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	12.72	0.01	0.00	12.76
Grading	0.02	0.16	0.10	0.00	0.01	0.01	0.02	0.00	0.01	0.01	13.39	0.01	0.00	13.43
Construction	0.26	1.91	1.10	0.00	0.00	0.13	0.13	0.00	0.13	0.13	176.44	0.02	0.00	176.88
Paving	0.03	0.16	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	12.77	0.00	0.00	12.82
Architectural Coating	0.43	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	0.00	0.00	2.56
Mobile Sources	0.13	0.38	1.26	0.00	0.14	0.01	0.15	0.00	0.01	0.01	147.48	0.01	0.00	147.66
Total	0.96	3.26	2.97	0.00	0.16	0.21	0.37	0.00	0.21	0.21	405.51	0.06	0.00	406.39

According to construction drawings, there is an estimated 10.15 acres of disturbed area associated with the proposed project. A conservative estimate of 2 foot depth was used to calculate the total volume disturbed. The density for concrete was used to estimate the total weight of concrete removed. Table XX shows the calculated tonnage for the proposed project.

Table 5
Stormwater Concrete Removal

Area Disturbed (acres)	Average Removal Depth (ft)	Concrete Density (lb/ft³)	Concrete Removed (lb)	Concrete Removed (tons)
10.15	2	149.5	132,198,066	66,099

This project includes drainage repairs of the flightline and airfield. There is a demolition, repairs, grading, and paving phase to this project. There are various pieces of heavy equipment used throughout the duration of this project including concrete saws, excavators, rubber tired dozers, loaders, pavers, and rollers. The project duration was assumed to be 6 months based on information from Laughlin AFB project managers.

The CalEEMod was used to estimate emissions from this project. User specific data for Val Verde County was used to tailor the model to Laughlin AFB. The windspeed, precipitation frequency, climate zone, land use setting, and local utility GHG intensity factors were used for Val Verde County and Texas where applicable. Both criteria pollutants and GHGs are emitted during the demolition, repairs, grading, and paving phases for this project. Table XX shows the criteria and GHG emissions associated with each phase of the proposed project.

There are also emissions associated with the 70,000 cubic yards of fill added to meet the slope requirements for the southeastern area at the end of the center runway. There are PM emissions associated with the movement of the fill material and GHG and criteria emissions from the equipment

used to move the material and place it over the culvert. It is estimated that this project would have a duration of 6 months. In order to move this material, a dozer is required. Dump trucks would be needed to move the material to the end of the runway. The fill material is assumed to be soil similar to what is currently in place at the end of the runway.

Total dust emissions from fill material storage piles result from several distinct source activities within the storage cycle: loading of fill material onto storage piles; equipment traffic in storage area; wind erosion of pile surfaces and ground areas around piles; and loadout of fill material for shipment or for return to the process stream.

Table 6
Stormwater Drainage Infrastructure Project Criteria and GHG Emissions

	ROG	NO _x	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	CO ₂	CH ₄	N ₂ O	CO ₂ e
Category	tons/yr										MT/yr			
Demolition	0.15	1.20	0.69	0.00	0.71	0.06	0.77	0.11	0.06	0.17	102.18	0.01	0.00	102.43
Repairs	0.05	0.45	0.25	0.00	0.09	0.02	0.11	0.05	0.02	0.07	36.27	0.00	0.00	36.36
Grading and Paving	0.06	0.38	0.21	0.00	0.00	0.03	0.03	0.00	0.03	0.03	26.46	0.01	0.00	26.57
Total	0.26	2.03	1.15	0.00	0.80	0.11	0.91	0.16	0.11	0.27	164.91	0.02	0.00	165.36

Table 7
Stormwater Drainage Culvert and Backfill Criteria and GHG Emissions

	ROG	NO _x	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	CO ₂	CH ₄	N ₂ O	CO ₂ e
Category	tons/yr										MT/yr			
Grading	0.07	0.55	0.33	0.00	0.06	0.03	0.09	0.03	0.03	0.06	47.52	0.01	0.00	47.65
Trenching	0.05	0.29	0.17	0.00	0.00	0.03	0.03	0.00	0.03	0.03	21.77	0.00	0.00	21.86
Site Preparation	0.11	0.91	0.50	0.00	0.18	0.05	0.23	0.10	0.05	0.15	72.53	0.01	0.00	72.72
Total	0.23	1.75	1.00	0.00	0.24	0.11	0.35	0.13	0.11	0.24	141.82	0.02	0.00	142.23

Table 8
Total Stormwater Drainage Criteria and GHG Emissions

	ROG	NO _x	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total	CO ₂	CH ₄	N ₂ O	CO ₂ e
Category	tons/yr										MT/yr			
Infrastructure Project	0.26	2.03	1.15	0.00	0.80	0.11	0.91	0.16	0.11	0.27	164.91	0.02	0.00	165.36
Culvert and Backfill	0.23	1.75	1.00	0.00	0.24	0.11	0.35	0.13	0.11	0.24	141.82	0.02	0.00	142.23
Total	0.49	3.78	2.15	0.00	1.04	0.22	1.26	0.29	0.22	0.51	306.73	0.04	0.00	307.59

***APPENDIX B - INTERAGENCY AND INTERGOVERNMENTAL
COORDINATION FOR ENVIRONMENTAL PLANNING***



FEMA

FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION VI
MITIGATION DIVISION

PUBLIC NOTICE REVIEW/ENVIRONMENTAL CONSULTATION

☐ We have no comments to offer. ☒ We offer the following comments:

**WE WOULD REQUEST THE REVIEW OF EXECUTIVE ORDER 11988 &
EXECUTIVE ORDER 11990. These orders place special importance on floodplains and direct
federal agencies to avoid conducting, allowing or supporting actions on a floodplain. Inform Local
and County Floodplain Administrator. We suggest contacting the state National Flood Insurance
Coordinator,**

Texas Water Development Board
Mike Segner, State NFIP Coordinator
(512) 463-3509
michael.segner@twdb.state.tx.us

REVIEWER:

DATE: October 30, 2012

Mayra G. Diaz, CFM

Floodplain Management & Insurance Branch
Mitigation Division
Phone 940-898-5541 | Mobile 940-390-0587 |
mayra.diaz@dhs.gov | www.floodsmart.gov



Ysleta del Sur Pueblo

Tribal Council – Javier Loera (War Captain/Tribal Historic and Preservation Officer) E-mail jloera@ydsp-nsn.gov

117 South Old Pueblo Road * P.O. Box 17579 * El Paso, Texas 79917 * (915) 859-8053 * Cell (915) 497-3876

November 13, 2012

Mr. Ramon Flores
47 CES/CEAN
251 Fourth Street, Bldg 100
Department Of The Air Force
47th Flying Training Wing (AETC)
Laughlin AFB TX 78843

Dear Mr. Flores:

This letter is in response to the correspondence received in our office in which you provide the Ysleta del Sur Pueblo the opportunity to comment the U.S. Department Of The Air Force Draft Environmental Assessment for multiple demolition projects, construction projects, and improved storm water drainage at Laughlin AFB TX.

The Ysleta del Sur Pueblo does not have any comments nor does it request consultation on this project due to its location being outside of our Pueblo's Native American Graves Protection and Repatriation Act (NAGPRA) area of interest and/or relevance.

Thank you for allowing us the opportunity to comment on this project.

Sincerely,

Javier Loera
War Captain/Tribal Historic and Preservation Officer
Ysleta del Sur Pueblo
E-mail: jcloera@ydsp-nsn.gov

United States Department of Agriculture



Natural Resources Conservation Service
101 South Main
Temple, TX 76501-7602

October 30, 2012

Ms. Jennifer A. Harris
Deputy Base Civil Engineer
Department of the Air Force
251 Fourth Street, Building 100
Laughlin Air Force Base, Texas 78843-5230

Dear Ms. Harris:

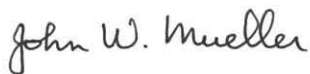
We have reviewed the information pertaining to the Draft Environmental Assessment for multiple demolition projects, construction projects, and improved storm water drainage at Laughlin Air Force Base, Texas.

The NRCS concurs with your finding of no significant impacts on the environment.

Thank you for the opportunity to review this proposed project.

Note: Future correspondence should be addressed to Salvador Salinas, State Conservationist. Richard Reznik is retired.

Sincerely,

For 
SALVADOR SALINAS
State Conservationist

Bryan W. Shaw, Ph.D., *Chairman*
Carlos Rubinstein, *Commissioner*
Toby Baker, *Commissioner*
Zak Covar, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 31, 2012

Mr. Ramon Flores
47 CES/CEAN
251 Fourth Street, Bldg 100
Laughlin AFB, Texas 78843

Re: TCEQ Grant and Texas Review and Comment System (TRACS) #2012-437, Laughlin AFB, Val Verde County – Demolition and repair.

Dear Mr. Flores:

The Texas Commission on Environment Quality (TCEQ) has reviewed the above-referenced project and offers following comments:

A review of the project for General Conformity impact in accordance with 40 CFR Part 93 indicates that the proposed action is located in Val Verde County, which is currently unclassified or in attainment of the National Ambient Air Quality Standards for all six criteria air pollutants. Therefore, General Conformity does not apply.

Although any demolition, construction, rehabilitation or repair project may produce dust and particulate emissions, these actions are not anticipated to result in a significant impact upon air quality standards. Any dust and particulate emissions should be easily controlled by using standard dust mitigation techniques. Any debris or waste disposal should be at an appropriately authorized facility

We do not anticipate significant long term environmental impacts from this project provided that associated construction and waste disposal activities are completed in accordance with applicable local, state, and federal environmental permits and regulations. We recommend that the applicant take necessary steps to ensure that best management practices are used to control runoff from construction sites in order to prevent detrimental impact to surface and ground water.

Thank you for the opportunity to review this project. If you have any questions, please contact Ms. Melanie Aldana at (512) 239-1622 or melanie.aldana@tceq.texas.gov.

Sincerely,

A handwritten signature in cursive script, reading "Susana M. Hildebrand".

Susana M. Hildebrand, P.E.
Chief Engineer

TEXAS HISTORICAL COMMISSION
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November 26, 2012

Mr. Ramon Flores
47 CES/CEAN
251 Fourth Street, Building 100
Laughlin AFB, TX 78843

Re: Finding of No Significant Impact and draft Environmental Assessment for multiple demolition projects, construction projects and improved storm water drainage at Laughlin Air Force Base, Val Verde County, Texas

Dear Mr. Flores:

Thank you for your correspondence describing the above referenced project. This letter serves as comment on the proposed undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission (THC).

Our review staff, led by William McWhorter has reviewed your submission of the above mentioned draft Environmental Assessment (EA) for multiple demolition projects, construction projects, and improved storm water drainage and runways at Laughlin Air Force Base. Thank you for submitting this follow-up report to address our original request for additional information associated with your draft EA report in July 2012. From the information provided in your report the THC concurs with Laughlin Air Force Base's finding of **NO HISTORIC PROPERTIES AFFECTED** for this project's undertaking.

Thank you for your cooperation in this state and federal review process, and for your efforts to preserve the irreplaceable heritage of Texas. If you have any questions concerning our review or if we may be of further assistance, please contact Mr. William McWhorter at 512/463-5833.

Sincerely,

William McWhorter

for
Mark Wolfe,
Executive Director
Texas Historical Commission
Texas State Historical Preservation Office



United States Department of Agriculture



Natural Resources Conservation Service

101 S. Main Street
Temple, TX 76501-6624
Phone: 254-742-9826
FAX: 254-742-9859

June 25, 2012

47th Flying Training Wing
561 Liberty Drive
Suite 1
Laughlin AFB, TX 78843

Attention: Colonel Thomas E. Murphy

Subject: LNU-Farmland Protection
Proposed Laughlin AFB Demolition, Construction, and Repair Project
Val Verde County, Texas

We have reviewed the information provided in your correspondence dated May 31, 2012 concerning the proposed demolition, construction, and repair project in Val Verde, County, Texas. This review is part of the National Environmental Policy Act (NEPA) evaluation for United States Air Force. We have evaluated the proposed site as required by the Farmland Protection Policy Act (FPPA).

The proposed projects are exempt because they do not contain Important Farmland Soils. We have completed a Farmland Conversion Impact Rating (form AD-1006) indicating the exemption. We urge you to use accepted erosion control methods during construction.

If you have any questions, please contact me at (254) 742-9855, Fax (254) 742-9859 or by email at wayne.gabriel@tx.usda.gov.

Sincerely,



Wayne Gabriel

NRCS Soil Scientist

Attachment

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request May 31, 2012			
Name of Project Laughlin AFB Demolition, Construction, and Repair Project		Federal Agency Involved USAFI			
Proposed Land Use		County and State Val Verde County, Texas			
PART II (To be completed by NRCS)		Date Request Received By NRCS June 15, 2012			
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply - do not complete additional parts of this form)		YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	Acres Irrigated	Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %			Amount of Farmland As Defined in FPPA Acres: %	
Name of Land Evaluation System Used	Name of State or Local Site Assessment System	Date Land Evaluation Returned by NRCS 6/27/2012			
PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly					
B. Total Acres To Be Converted Indirectly					
C. Total Acres In Site					
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland					
B. Total Acres Statewide Important or Local Important Farmland					
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted					
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value					
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)					
PART VI (To be completed by Federal Agency) Site Assessment Criteria (Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)		Maximum Points	Site A	Site B	Site C
1. Area In Non-urban Use		(15)			
2. Perimeter In Non-urban Use		(10)			
3. Percent Of Site Being Farmed		(20)			
4. Protection Provided By State and Local Government		(20)			
5. Distance From Urban Built-up Area		(15)			
6. Distance To Urban Support Services		(15)			
7. Size Of Present Farm Unit Compared To Average		(10)			
8. Creation Of Non-farmable Farmland		(10)			
9. Availability Of Farm Support Services		(5)			
10. On-Farm Investments		(20)			
11. Effects Of Conversion On Farm Support Services		(10)			
12. Compatibility With Existing Agricultural Use		(10)			
TOTAL SITE ASSESSMENT POINTS		160			
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100			
Total Site Assessment (From Part VI above or local site assessment)		160			
TOTAL POINTS (Total of above 2 lines)		260			
Site Selected:	Date Of Selection	Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>			
Reason For Selection:					
Name of Federal agency representative completing this form:					
Date:					

(See Instructions on reverse side)

Form AD-1006 (03-02)

TEXAS HISTORICAL COMMISSION
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July 6, 2012

Mr. Ramon Flores
47 CES/CEAN
251 Fourth Street, Building 100
Laughlin AFB, TX 78843

Re: Environmental Assessment for multiple demolition projects, construction projects and improved storm water drainage at Laughlin Air Force Base

Dear Mr. Flores:

Thank you for your correspondence describing the above referenced project. This letter serves as comment on the proposed undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission (THC).

Our review staff, led by William McWhorter has reviewed your submission of the above mentioned Environmental Assessment (EA) for multiple demolition projects, construction projects, and improved storm water drainage and runways at Laughlin Air Force Base. Thank you for submitting this report, however, your draft EA report does not provide our office with sufficient information to provide a consultation. Specifically:

- There are no determinations of eligibility for the structures impacted by this proposed project
- There are no years of construction for these structures, so we might determine if they are of historic age
- There are no photos of the structures impacted by this proposed project (other than aerials of the base)

We therefore are requesting your Section 106 Coordination regarding this project, including current photos of and years of construction for the following: Building #380, Buildings # 9200-9220, Facility #1100, and the infrastructure associated with the storm drainage and runway improvements proposed. Finally, please provide the Department of the Air Force's eligibility findings for these structures with your response.

Thank you for your cooperation in this state and federal review process, and for your efforts to preserve the irreplaceable heritage of Texas. If you have any questions concerning our review or if we may be of further assistance, please contact Mr. William McWhorter at 512/463-5833.

Sincerely,



for
Mark Wolfe,
Executive Director



RICK PERRY, GOVERNOR • SHERI S. KRAUSE, CHAIRMAN • MARK WOLFE, EXECUTIVE DIRECTOR

P.O. BOX 12276 • AUSTIN, TEXAS • 78711-2276 • P 512.463.6100 • F 512.475.4872 • TDD 1.800.735.2989 • www.thc.state.tx.us

Bryan W. Shaw, Ph.D., *Chairman*
Buddy Garcia, *Commissioner*
Carlos Rubinstein, *Commissioner*
Mark R. Vickery, P.G., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 20, 2012

Colonel Thomas E. Murphy
USAF
47 CES/CEAN
251 Fourth Street
Laughlin AFB, TX 78843

Re: TCEQ Grant and Texas Review and Comment System (TRACS) #2012-252, City of
Laughlin AFB, Val Verde County – Laughlin Air Force Base DOPAA

Dear Colonel Murphy:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above-referenced project and offers following comments:

A review of the project for General Conformity impact in accordance with 40 CFR Part 93 indicates that the proposed action is located in the City of Laughlin AFB, Val Verde County, which is currently unclassified or in attainment of the National Ambient Air Quality Standards for all six criteria air pollutants. Therefore, General Conformity does not apply.

Although any demolition, construction, rehabilitation or repair project will produce dust and particulate emissions, these actions should pose no significant impact upon air quality standards. Any and particulate emissions should be easily controlled by using standard dust mitigation techniques.

We recommend the environmental assessment address actions that will be taken to prevent surface and groundwater contamination.

Any debris or waste disposal should be at an appropriately authorized disposal facility

Thank you for the opportunity to review this project. If you have any questions, please contact Ms. Janie Roman at (512) 239-0604 or Janie.roman@tceq.texas.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Jim Harrison".

Jim Harrison, Director
Intergovernmental Relations Division



DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P.O. BOX 17300
FORT WORTH, TEXAS 76102-0300

June 20, 2012

Planning, Environmental, and Regulatory Division
Regulatory Branch

SUBJECT: Project Number SWF-2012-00279, Targeted Demolition, Construction, and Repair of Laughlin Air Force Base

Ramon Flores
47 CES/CEAN
251 Fourth Street. Bldg 100
Laughlin AFB, TX 78843

Dear Mr. Flores:

Thank you for your letter received June 15, 2012 concerning a proposal by The United States Air Force to demolish, construct and repair Laughlin Air Force Base located at Laughlin AFB, Val Verde County TX. This project has been assigned Project Number SWF-2012-00279. Please include this number in all future correspondence concerning this project.

Mr. Frederick Land has been assigned as the regulatory project manager for your request and will be evaluating it as expeditiously as possible.

You may be contacted for additional information about your request. For your information, please reference the Fort Worth District Regulatory Branch homepage at <http://www.swf.usace.army.mil/regulatory> and particularly guidance on submittals at <http://www.swf.usace.army.mil/pubdata/enviro/regulatory/introduction/submittal.pdf>, and mitigation at http://www.usace.army.mil/CECW/Pages/final_cmr.aspx that may help you supplement your current request or prepare future requests.

If you have any questions about the evaluation of your submittal or would like to request a copy of one of the documents referenced above, please contact Mr. Frederick Land at the address above or telephone (817) 886-1729 and refer to your assigned project number. Please note that it is unlawful to start work without a Department of the Army permit if one is required.

Please help the Regulatory Program improve its service by completing the survey on the following website: <http://per2.nwp.usace.army.mil/survey.html>.

Stephen L Brooks
Chief, Regulatory Branch